



HCFA

OFFICE OF SPECIAL PROGRAMS

End-Stage Renal Disease Second Annual Report to Congress

FY 1980

REPORTS

RA

C45

K5

E62

1980

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Health Care Financing Administration

10/19/80

The HEALTH CARE FINANCING ADMINISTRATION (HCFA) was established to combine health financing and quality assurance programs into a single agency. HCFA is responsible for the Medicare program, Federal participation in the Medicaid program, the Professional Standards Review program and a variety of other health care quality assurance programs.

The mission of the Health Care Financing Administration is to promote the timely delivery of appropriate, quality health care to its beneficiaries—approximately 47 million of the nation's aged, disabled and poor. The Agency must also ensure that program beneficiaries are aware of the services for which they are eligible, that those services are accessible and of high quality and that Agency policies and actions promote efficiency and quality within the total health care delivery system.

The OFFICE OF SPECIAL PROGRAMS (OSP) was established within HCFA to encompass those organizations which deal with those unique segments of Medicare and Medicaid that warrant special attention; one of its components is the **OFFICE OF END-STAGE RENAL DISEASE (OESRD)**. The OESRD is responsible for promoting the delivery of quality health care to Medicare beneficiaries with end-stage renal disease.

The End-Stage Renal Disease Annual Report to Congress is prepared in accordance with Section 1881(g) of the Social Security Act. The purpose of the report is to provide a means of measuring the performance of the Office in fulfilling its responsibilities of promoting high quality care, fostering the use of home dialysis and transplantation and ensuring that the care needed by ESRD beneficiaries is furnished as efficiently as possible.

RA
645
K5
E62
1980

End-Stage Renal Disease Second Annual Report to Congress

FY 1980

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Health Care Financing Administration

Executive Summary

This report is the second in a series of annual reports prepared by the Office of Special Programs in the Health Care Financing Administration to assess the implementation and effectiveness of the End-Stage Renal Disease Program. The evaluation is mandated in Section 1881(g) of the Social Security Act.

The report covers the full range of activities related to the care of ESRD patients that took place during 1979. This includes the number of patients utilizing the various forms of treatment and discussions of cost savings experiments and basic kidney research conducted during the year. The report is divided into eight chapters: Overview, Dialysis, Transplants, Mortality and Morbidity, Costs, Research, Network Activities and Five-Year Projections.

The data collected for the report showed that 1979 was a year of substantial growth in the ESRD dialysis population. The total dialysis population increased from 36,463 patients to 45,565 patients. That 25 percent increase was more than double the 1978 increase of 12.4 percent. The home dialysis

population increased from 4,538 patients to 5,941 patients, a 30.9 percent increase. The total number of transplants performed increased from 3,949 to 4,271, an increase of 8.2 percent. That is the first time that the number of transplants performed in a year exceeded 4,000.

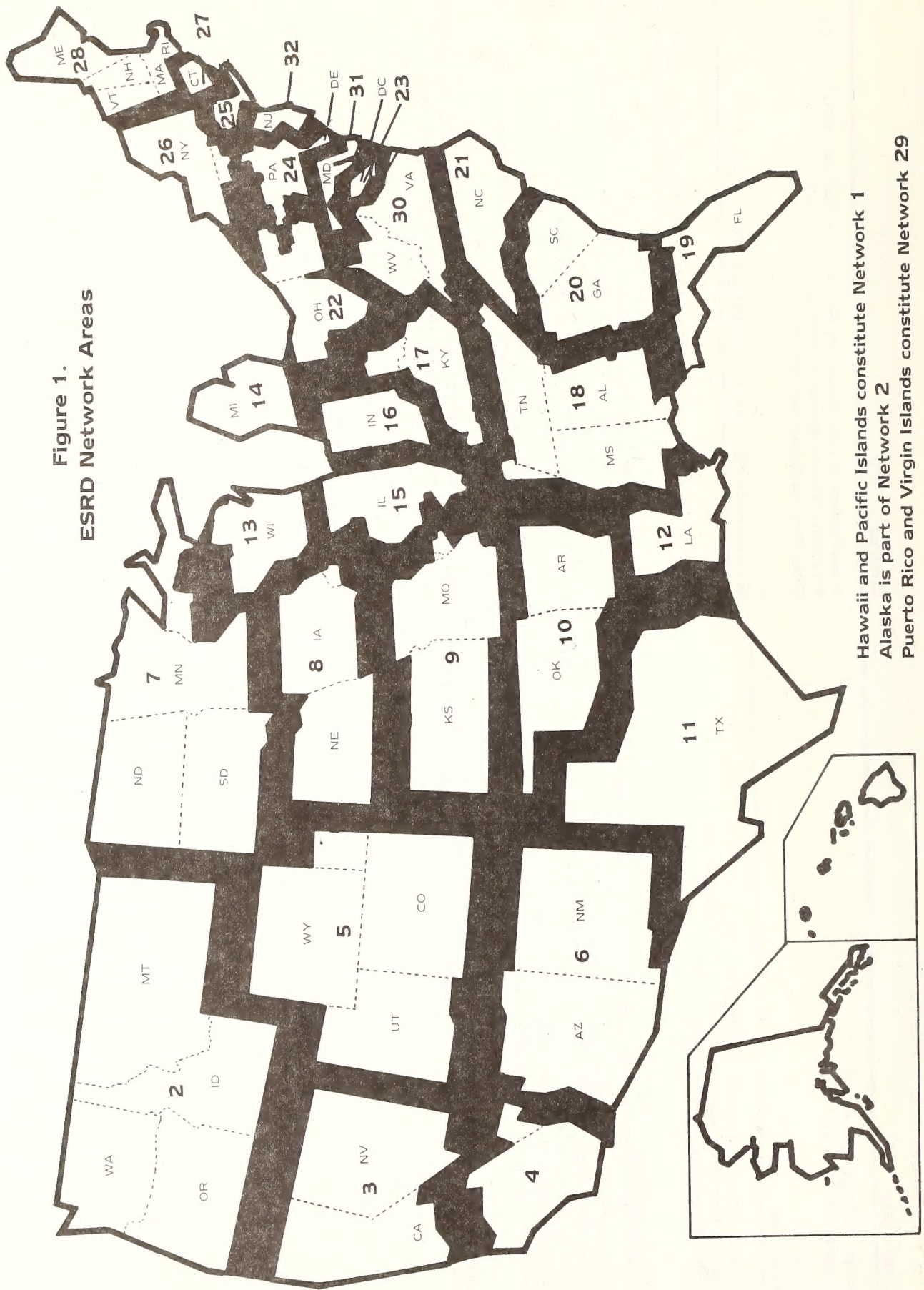
Total expenditures during 1979 were \$850.5 million, up from \$737.2 million in 1978. The 1979 figure will probably increase, however, as bills continue to be posted. Using current figures, per capita costs actually decreased 3.5 percent from the 1978 level of \$16,654 to \$16,075. The average payment rate for a dialysis session remained steady at \$149. Kidney transplantation charges averaged \$19,300, an increase of 1.5 percent over 1978. In summary, the data showed increased use of the treatment modalities that Congress wished to emphasize and cost increases at a rate well below the general medical care inflation rate.

The major findings of the 1980 ESRD Annual Report to Congress are set forth in the Program Highlights portion of the Overview.

Table of Contents

Overview	1	Costs	47
Program Highlights	1	Hospitalization for Ancillary Problems - Section 1881(g)(10)	47
Program Activities	3	Payment Rates - Section 1881(g)(11)	48
		Cost Saving Experiments - Section 1881(g)(12)	50
Dialysis	9	Research - Section 1881(g)(13)	54
Patient Profile - Section 1881(g)(1)	9		
New Patient Characteristics - Section 1881(g)(2)	9	Network Activities - Section 1881(g)(14)	57
Facilities - Section 1881(g)(3)	10		
Transplants	15	Five-Year Projections - Section 1881(g)(15)	60
Summary of Activity - Section 1881(g)(4)	15		
Patients Awaiting Organs - Section 1881(g)(5)	15	Appendix A - Data Sources	61
Failures - Section 1881(g)(6)	17		
Kidney Acquisition Costs - Section 1881(g)(7)	17	Appendix B - Classifications of ESRD Facilities	63
Facilities - Section 1881(g)(8)	23		
Mortality and Morbidity - Section 1881(g)(9)	42	Appendix C - Profit and Non-Profit Providers of ESRD Services - Network Maps	65

Figure 1.
ESRD Network Areas



Hawaii and Pacific Islands constitute Network 1
 Alaska is part of Network 2
 Puerto Rico and Virgin Islands constitute Network 29

Overview

INTRODUCTION

Public Law 95-292 was enacted on June 13, 1978, to improve existing Medicare program benefits for persons with end-stage renal disease (ESRD). The Congress recognized that descriptive data on patients, treatments, costs, and quality were necessary for program assessment. The statute requires the Secretary to provide the information identified in Section 1881(g) of the Social Security Act. There are 15 items enumerated in Section 1881(g), and they are addressed in the body of this report.

This overview is divided into two main areas. The first section contains the program highlights. This section will indicate the direction in which the program has moved in 1979 and identify those areas of special significance or improvement. The second section discusses the ESRD program activities for 1979. The subjects for discussion in this section are actions required by P.L. 95-292, but which are not done on an ongoing basis. Also included are administratively initiated activities of special importance.

PROGRAM HIGHLIGHTS

Significant growth in the ESRD dialysis population occurred during 1979.

- o The total dialysis population increased from 36,463 patients to 45,565 patients. The 25 percent increase was more than double the 1978 increase of 12.4 percent.

- o The home dialysis population increased from 4,538 patients to 5,941 patients, a 30.9 percent increase.

- o Home dialysis patients represented 13 percent of the total dialysis population, an increase over the 12.4 percent of 1978 and the second year to show an increase.

Transplants also increased in 1979.

- o The total number of kidney transplants performed increased from 3,949 to 4,271, an increase of 8.2 percent.

- o The number of living related donor transplants increased by 33 and the number of cadaveric donor transplants increased by 289.

- o The proportion of total transplants with living donors was 28.2 percent, a decrease from 29.7 percent in 1978.

The costs of the ESRD program increased much less rapidly than the general medical care inflation rate.

- o Total expenditures during 1979 were \$850.5 million, up from \$737.2 million in 1978. On a per capita basis, costs actually decreased 3.5 percent from the 1978 level of \$16,654 to \$16,075.

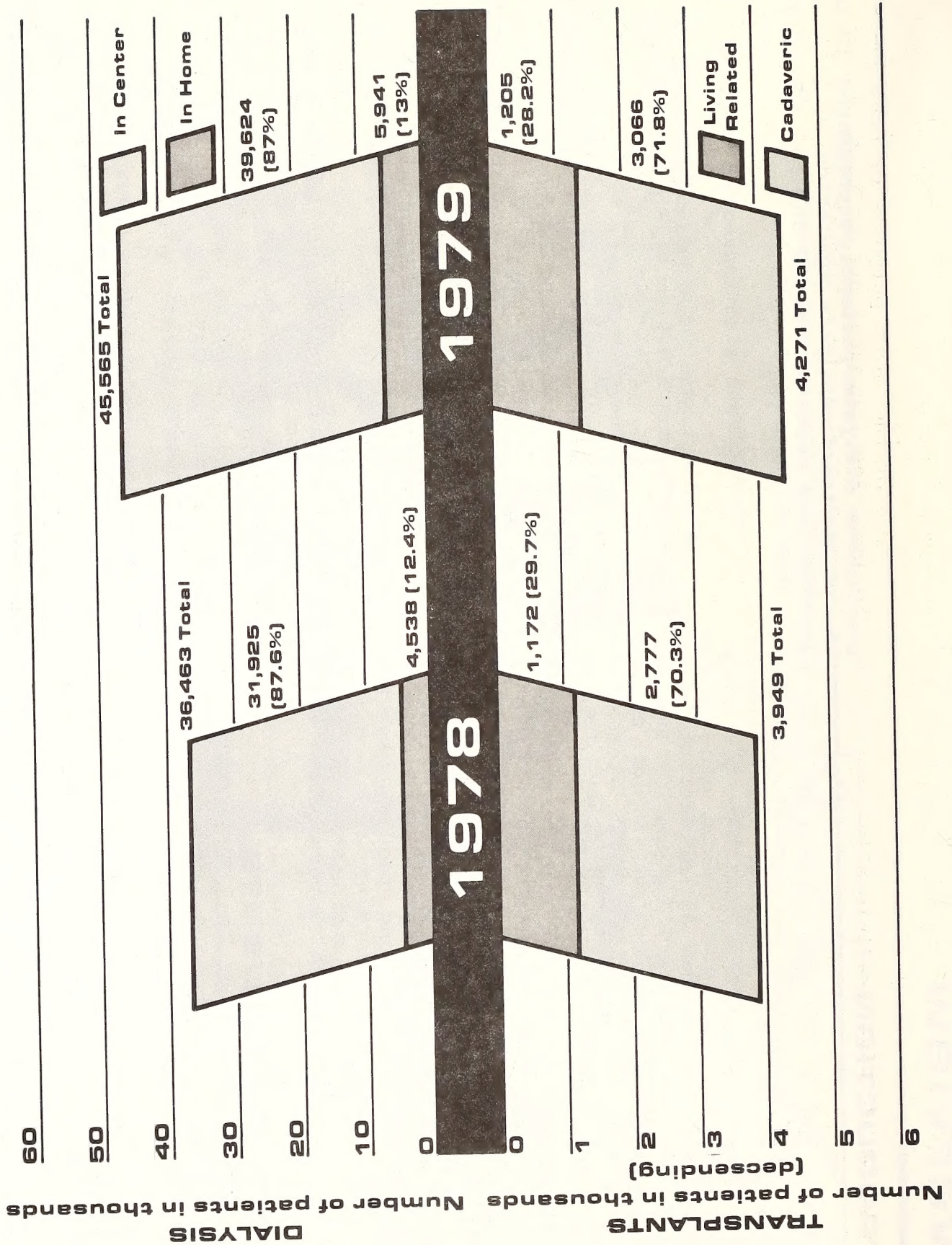
- o The average payment rate for a dialysis session remained steady at \$149.

- o The charges for kidney transplantations averaged \$19,300, an increase of 1.5 percent over 1978.

- o The amount paid to physicians for supervisory services remained at the rate established in 1978.

The comparative distribution of the various

FIGURE 2. OVERVIEW OF TRANSPLANT AND DIALYSIS PATIENTS 1978-1979.



forms of treatment for ESRD patients continued to show divergence.

o Networks which have traditionally reported a large percentage of patients being treated with in-center dialysis, home dialysis, cadaveric donor transplant, and living related donor transplant continued to rank high.

o The proportion of patients on home dialysis in each network ranged from 3.2 percent to 40 percent.

o The proportion of patients receiving cadaveric donor transplants in each network ranged from 0.55 percent to 18.5 percent.

o The proportion of patients receiving living related donor transplants in each network ranged from 0.22 percent to 13.2 percent.

o The proportion of patients on in-center dialysis (staff-assisted and self-dialysis) in each network ranged from 49 percent to 91 percent.

PROGRAM ACTIVITIES

Public Law 95-292 was, in part, the product of concern over the rising costs of the ESRD program. The legislation included several provisions which stressed the use of the lower cost treatment modalities, especially home dialysis and transplantation. It included other provisions establishing new reimbursement methods designed to contain costs. This section reports on the progress made during 1979 on those activities necessary to implement the provisions of the law. The section is divided into the three main areas of concern: home dialysis, transplant, and cost containment.

Home Dialysis

One of the major purposes of P.L. 95-292 was to encourage increased use of home dialysis. In testimony during the deliberations on P.L. 95-292 many in the medical community indicated that home dialysis is less expensive than staff-assisted dialysis performed in a facility, and that it results in an improved quality of life for the patient who is medically and emotionally suitable for home dialysis.

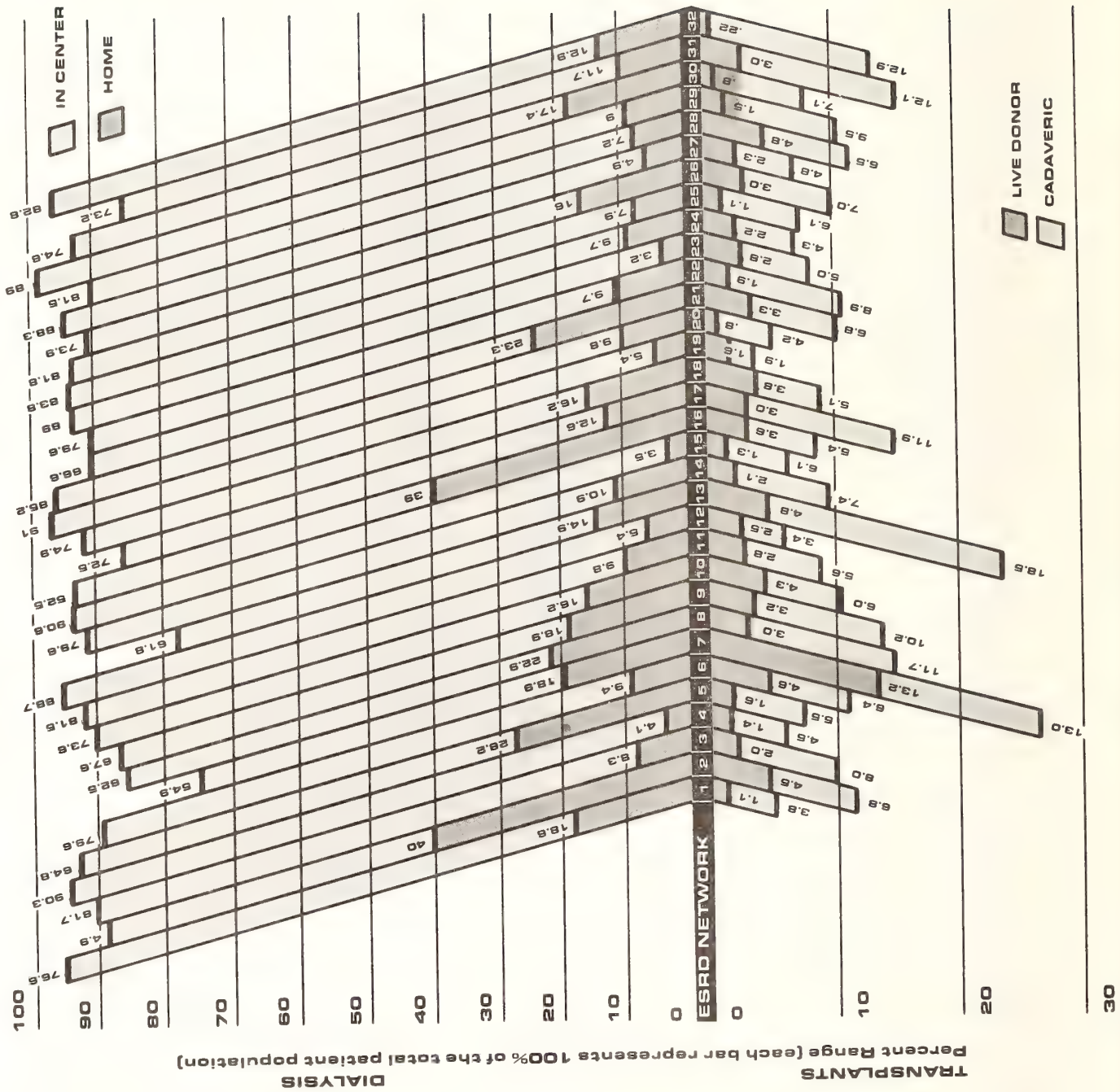
Prior to the enactment of P.L. 95-292, Medicare reimbursement of home dialysis costs was limited, since coverage was defined in terms of institutional services. This resulted in either high personal costs for home dialysis patients or a large number of visits to the facility to receive services that were not reimbursable when furnished in the home. The legislation removed the disincentives to home dialysis by defining coverage in terms of the procedure rather than the treatment setting.

It also added home dialysis incentives by authorizing waiver of the waiting period necessary to establish entitlement to Medicare benefits based on ESRD. Usually, entitlement begins on the first day of the third month after the month a course of dialysis begins. Now, for patients who enter a self-dialysis training program during the first three months of treatment, entitlement can begin with the first month of the course of dialysis.

Regulations implementing the early entitlement provision were published in the FEDERAL REGISTER on September 28, 1978. Publication was in the form of a final regulation with a comment period. The regulation was effective October 1, 1978, as prescribed in the statute. More than 800 patients were granted approval for waiver of the waiting period for self-dialysis training undertaken during 1979.

Under the original ESRD legislation, P.L. 92-603, home dialysis support services furnished

FIGURE 3. DISTRIBUTION OF TOTAL ESRD POPULATION BY NETWORK



by nonphysicians were not covered, and many of the incidental disposable supplies necessary for home dialysis were also not covered. P.L. 95-292 extended coverage to all necessary home dialysis supplies and support services, removing the disincentives to home dialysis.

The regulations governing coverage of home dialysis supplies and equipment were published in the FEDERAL REGISTER on October 24, 1978. In April 1979, the operating instructions necessary to implement the law and regulations were issued. Although some minor technical problems arose concerning the billing procedures, claims for home dialysis supplies and support services were paid.

During 1979 instructions were issued on program coverage for continuous ambulatory peritoneal dialysis (CAPD). The technique had been in the developmental stage for the last few years, and widespread use was not encouraged until provision could be made for adequate quality safeguards.

CAPD involves using the peritoneum as the dialysis membrane. It is done on a seven day a week, 24 hours a day, basis. The dialysis fluid enters the peritoneal cavity through a permanent catheter, with the fluid changed three to five times daily. The impurities in the blood are removed by the fluid across the peritoneum. CAPD requires neither machinery nor structural alteration of the patient's home, and a CAPD patient does not require assistance to dialyze. It is, by its nature, a home dialysis technique.

Transplantation

While P.L. 95-292 stressed home dialysis, it also encouraged kidney transplantation. A successful transplant is an effective yet relatively inexpensive method of treating ESRD compared to long-term dialysis.

A transplant involving a living related donor has the greatest probability of success. Ini-

tially Medicare paid for the medical expenses incurred by the kidney donor under its general coverage policy determination authority.

Benefits payable were the usual Medicare benefits, subject to the deductible and coinsurance requirements. To encourage donations, P.L. 95-292 included specific coverages and resulted in payment of donation-related medical expenses with the deductible and coinsurance requirements waived.

Only minor regulatory changes were necessary to provide for the expanded coverage of donor expenses. Those changes were published in the FEDERAL REGISTER on October 24, 1978. In April 1979, the instructions implementing the law and regulations were issued. Payments are being made for donation-related medical services, and we are not aware of any significant problems in this area.

Cost Containment

One area of potential high cost to the program results from payment for the rental of home dialysis equipment. The total rent paid by Medicare over the years can exceed the purchase price of the equipment. To alleviate this situation in a manner that also provided incentives to patients to select home dialysis, P.L. 95-292 authorized payment to dialysis facilities for 100 percent of home dialysis equipment costs, under certain conditions. The basic conditions are that the facility choose to be paid under this provision, sign an agreement to that effect, and use the equipment it purchases only in the homes of Medicare beneficiaries.

The regulations were changed to provide for 100 percent reimbursement of home dialysis equipment on December 14, 1978. Instructions implementing the regulations were issued in May 1979. However, many Health Care Financing Administration (HCFA) Regional Offices had begun to implement the provision prior to that date through

interim agreements. Consequently, facilities wishing to participate in this program have signed agreements with HCFA, and payment is being made under the 100 percent home equipment provision.

As another means of combating cost increases, P.L. 95-292 added extra encouragement for in-center self-dialysis. In-center self-dialysis is similar to home dialysis in that patients in both modalities undergo training to make them responsible for conducting their own dialysis sessions. In-center self-dialysis is performed within the dialysis facility, but the facility's staff provides only minimum assistance to the self-dialysis patients. The difference in personnel requirements between in-center self-dialysis and the full staff-assisted treatment was to account for the lower costs of in-center self-dialysis. The regulations on in-center self-dialysis were published in the FEDERAL REGISTER on October 29, 1978. The instructions to implement the regulations were issued initially in April 1979 and revised in July.

Self-care dialysis did not become a widely used treatment method during 1979. This was due primarily to reimbursement problems. There was little reliable data available with which to establish in-center self-dialysis rates, so rates were set based on assumed cost differences, and the reimbursement rate for self-care dialysis in a facility was set at a fixed rate equal to 75 percent of the full-care rate. Intermediaries and facilities said that this rate was too low and, rather than attempting to provide services that would cost 75 percent of the full-service rate, suggested that if the rate was allowed to stand it would result in little or no development of in-center self-care dialysis capability. After much consultation, revised instructions were issued to the intermediaries to reduce the full-care rate by the specific differential attributed to use of self-dialysis.

An optional home target rate reimbursement provision was included in P.L. 95-292 to reduce costs further. Under the terms of the law, the target rate may not exceed 70 percent of the national average payment, adjusted for regional variations, for maintenance dialysis services furnished in approved facilities during the preceding fiscal year. The target rate constitutes full payment for all home dialysis items and services furnished to the patient. The facility will have the flexibility to choose the specific types of items and services they consider necessary to support each patient in the home setting, including, when the facility deems it appropriate, a home aide to assist the patient.

The regulations for home target rate reimbursement were published in October 1979. The instructions to implement the home target rate will not be issued until the summer of 1980. The number of facilities that will elect to take the target rate is not yet known. The home target rate reimbursement system will be fully implemented during 1980.

Public Law 95-292 also provided that Medicare payments to organ procurement agencies (OPA) and histocompatibility laboratories should be based on the costs incurred by such organizations. Previously, payment was based on the charges imposed by OPAs and histocompatibility laboratories in the transplant hospital. The regulations implementing this provision were published on December 14, 1978.

The final cost containment provision of P.L. 95-292 requires the establishment of the amounts of payments for outpatient maintenance dialysis on a cost-related basis or other economical and equitable basis, known as the incentive rate.

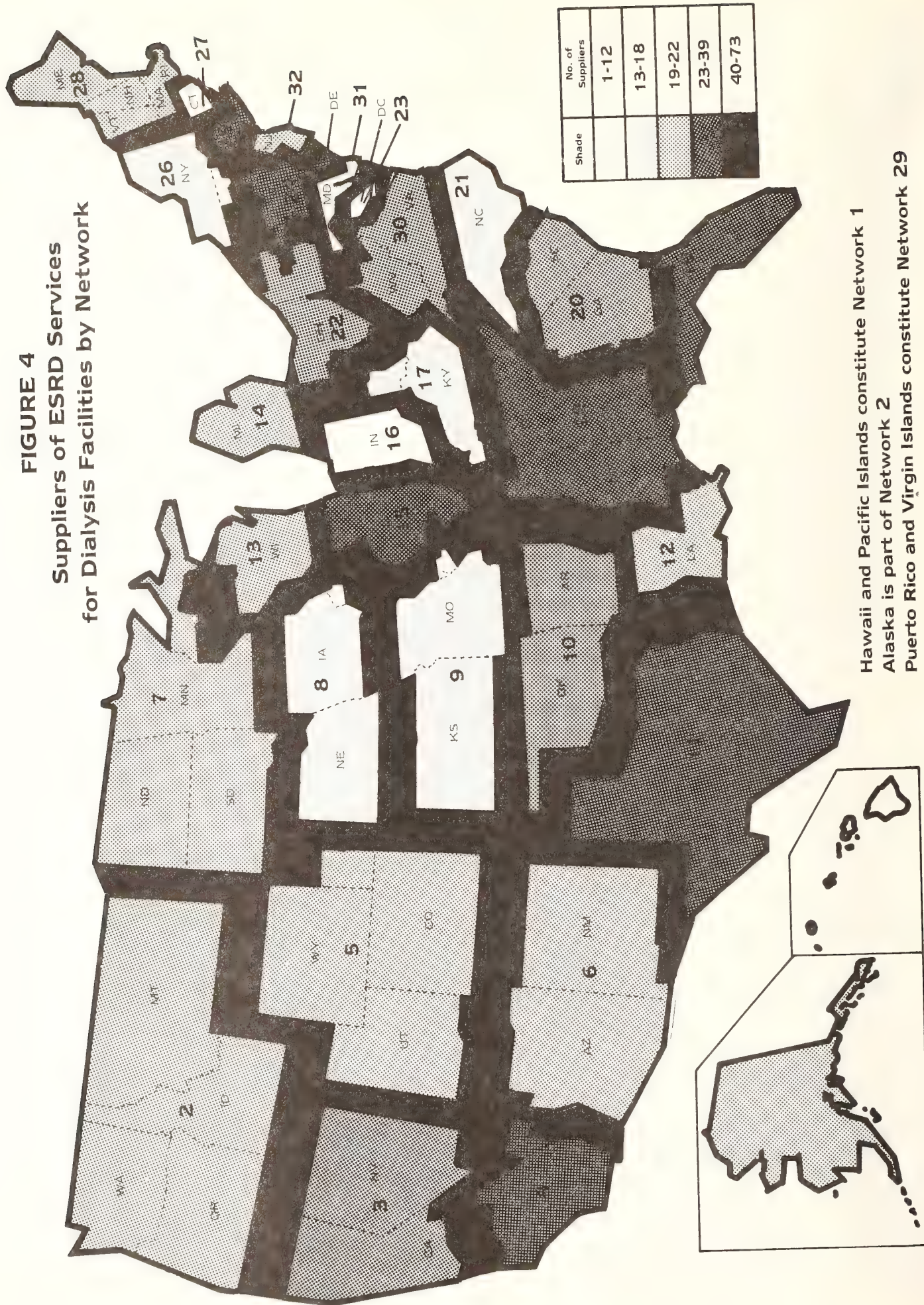
Draft incentive rate reimbursement regulations were discussed with the medical community. They expressed concern that publication of the regulation would result in reduced availability

of services rather than increased economy of service. Based on these discussions a decision was made to reevaluate the regulation.

Preparation of revised incentive rate reim-

bursement regulations is now almost completed. It appears, however, that a fully implemented incentive reimbursement system will not be in place before 1981.

FIGURE 4
Suppliers of ESRD Services
for Dialysis Facilities by Network



Dialysis*

PATIENT PROFILE

At the end of 1979, the total dialysis population was 45,565. Of that total population, (including both staff-assisted and self-dialysis patients) 39,624, or 86.9 percent, were receiving their treatments in facilities. The remaining 5,941 patients were dialyzing at home.

The ESRD networks range in size from 353 dialysis patients to 3,738 dialysis patients. However, the 10 largest networks contain approximately 55 percent of the total dialysis population. The number of home dialysis patients per network ranges from 32 patients to 489 patients.

TABLE 1a
CHANGE IN THE PERCENTAGE DISTRIBUTION
OF THE DIALYSIS POPULATION 1978 to 1979

	Total Dialysis Population	In-center Dialysis Population	Home Dialysis Population
1978 Actual	36,463	31,925	4,538
Percent Distribution	100.00	87.55	12.45
1979 Actual	45,565	39,624	5,941
Percent Distribution	100.00	86.96	13.04
Change in		-59	+59
Percent Distribution			

More than two-thirds (68 percent) of the home dialysis population is found in less than half (14) of the networks. The percentage of home dialysis patients in the networks ranges from 3.4 percent to 44.7 percent. In general, those

*This is in response to Section 1881(g)(1): "the number of patients nationally and by renal disease network on dialysis (self-dialysis or otherwise) at home and in facilities"

*Section 1881(g)(2): "the number of new patients entering dialysis at home and in facilities during the year"

networks that have traditionally had the greatest proportion of patients on home dialysis still do. There are, however, signs of change in the ranks of the leading networks as others have made large strides in the past year.

TABLE 1b
NUMBER AND PERCENT INCREASE
OF MEDICARE PATIENTS

	1978	1979	Increase	Percent Increase
Total Dialysis Population	36,463	45,565	9,102	25
In-center Dialysis Population	31,925	39,624	7,699	24.1
Home Population	4,538	5,941	1,403	30.9

NEW PATIENT CHARACTERISTICS*

The total dialysis population increased 25 percent during 1979, which is more than double the 12.4 percent increase during 1978. Six networks reported population growth of over 40 percent. An additional 13 networks reported increases ranging between 25 and 40 percent.

The home dialysis population increased 30.9 percent over 1978 and has increased 58.5 percent since 1977. Twelve of the networks increased the

number of patients on home dialysis by more than 40 percent. An additional ten networks showed increases in home dialysis between 25 and 40 percent. Thirty of the networks showed a net increase in the number of home dialysis patients. The data used to make these calculations are year-end figures; that is, the number of patients reported on home dialysis in 1979 are really those patients on home dialysis as of December 31, 1979. Of necessity, new patients are calculated by subtracting the 1978 figure from the 1979 figure. Because people are transplanted, return to in-center dialysis, or die, the number of patients beginning home dialysis during any year is greater than a simple subtraction of year-end figures indicates. The same is true for the in-center population calculation.

FACILITIES*

As of December 1979, there were 975 hospitals and facilities approved to provide dialysis services; of these, 526 were renal dialysis centers (RDC). An RDC is a hospital unit which provides the total range of diagnostic, therapeutic, and rehabilitative services (except transplantation) required for the care of ESRD dialysis patients. The remaining 449 facilities were renal dialysis facilities (RDF) units (hospital based or freestanding) approved to furnish only dialysis services to ESRD patients.

ESRD facilities (both RDC and RDF), which meet all the conditions for coverage of ESRD services, are further classified according to utilization as follows: unconditional, conditional or exception status. The criteria for

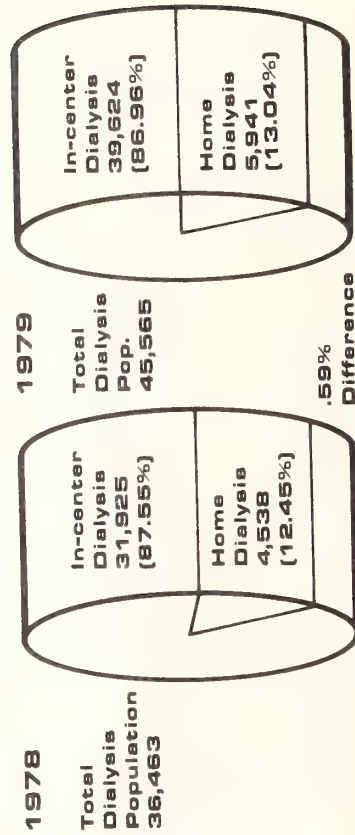
these classifications, known as minimum utilization rates (MUR), are defined in 42 CFR 405.2100 (see Appendix B).

The following numbers of facilities have been classified according to the criteria established in regulation:

TABLE 2
MINIMUM UTILIZATION RATE STATUS

	Total	Unconditional	Conditional	Exception
Renal Dialysis Center	526	436	79	11
Renal Dialysis Facility (hospital based)	119	88	24	7
Renal Dialysis Facility (free standing)	330	279	51	0
Total	975	803	154	18

FIGURE 5
NEW PATIENT CHARACTERISTICS



*Section 1881(g)(3): "the number of facilities providing dialysis and the utilization rates of those facilities"

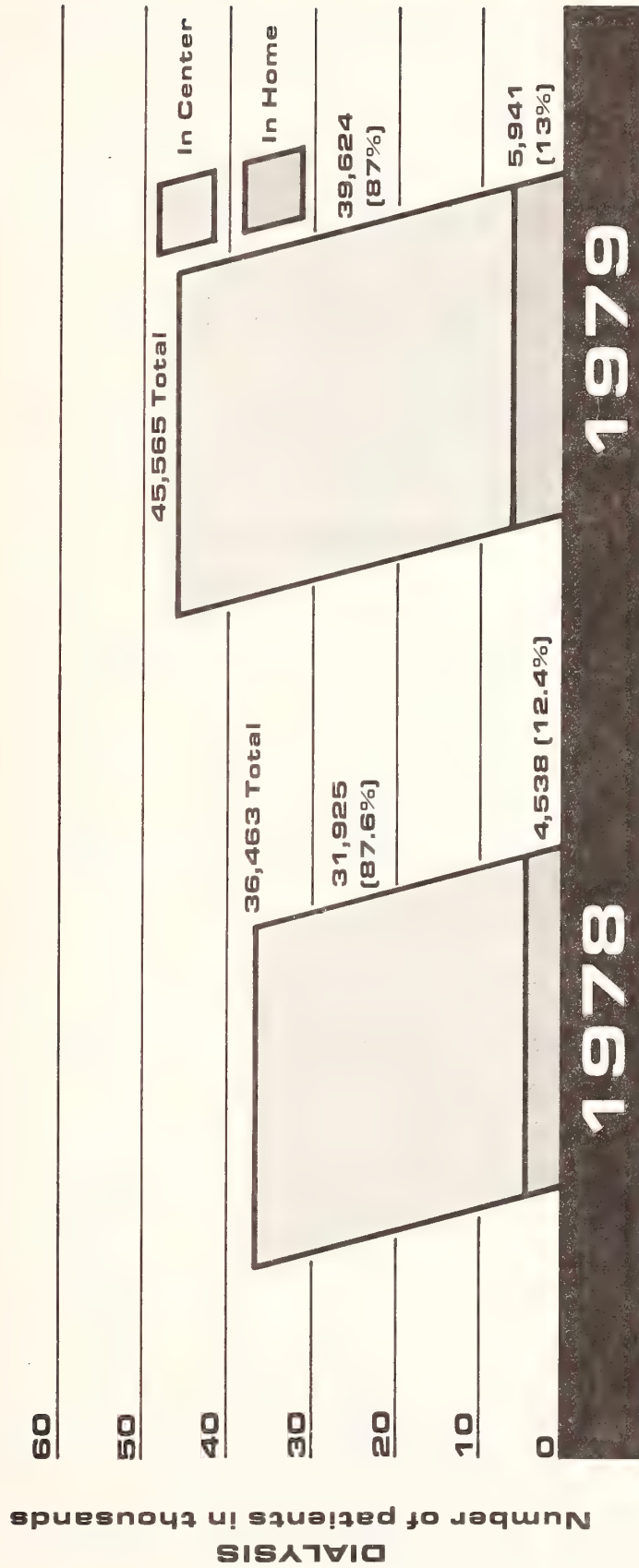


FIGURE 6. DIALYSIS 1978-1979

TABLE 3
DIALYSIS TREATMENT SETTING OF
ESRD PATIENTS BY ESRD NETWORK

ESRD NETWORK	FACILITIES SURVEYED REPORTING		TOTAL DIALYSIS PATIENTS	DIALYZED IN-CENTER TOTAL	DIALYZED IN-CENTER PERCENT	DIALYZED AT HOME TOTAL	DIALYZED AT HOME PERCENT
1	7	7	353	284	80.4%	69	19.5%
2	25	25	1,093	604	55.2%	489	44.7%
3	41	41	2,003	1,817	90.7%	186	9.2%
4	83	83	3,738	3,576	95.6%	162	4.3%
5	23	23	778	542	69.6%	236	30.3%
6	24	22	698	624	89.3%	74	10.6%
7	25	25	675	502	74.3%	173	25.6%
8	16	16	519	403	77.6%	116	22.3%
9	26	26	1,149	898	78.1%	251	21.8%
10	29	28	723	601	81.9%	132	18.0%
11	64	57	2,674	2,386	89.2%	288	10.7%
12	23	23	945	891	94.2%	54	5.7%
13	21	21	576	464	80.5%	112	19.4%
14	32	32	1,794	1,577	87.9%	217	12.0%
15	55	44	1,923	1,852	96.3%	71	3.6%
16	11	11	941	540	57.3%	401	42.6%
17	20	19	826	704	85.2%	122	14.7%
18	43	43	2,217	1,822	82.1%	395	17.8%
19	50	50	2,667	2,518	94.4%	149	5.5%
20	38	38	1,943	1,742	89.6%	201	10.3%
21	17	17	1,035	767	74.1%	268	25.8%
22	32	32	1,946	1,735	89.1%	211	10.8%
23	18	17	932	900	96.5%	32	3.4%
24	50	50	2,344	2,102	89.6%	242	10.3%
25	53	53	3,361	3,073	91.4%	288	8.5%
26	22	22	947	778	82.1%	169	17.8%
27	14	14	662	627	94.7%	35	5.2%
28	30	30	1,843	1,674	90.8%	169	9.1%
29	13	13	535	486	90.8%	49	9.1%
30	33	33	1,411	1,144	81.0%	267	18.9%
31	13	12	535	451	86.1%	74	13.8%
32	23	23	1,769	1,530	86.4%	239	13.5%
TOTAL	973	950	45,565	39,624	86.9%	5,941	13.0%

PERCENTAGES MAY NOT ADD TO 100.0% DUE TO ROUNDING

TABLE 4
ANNUAL DISTRIBUTION OF HOME PATIENTS
BY ESRD NETWORK

ESRD NETWORK	1977		1978		1979	
	HOME TOTAL	PATIENTS PERCENT	HOME TOTAL	PATIENTS PERCENT	HOME TOTAL	PATIENTS PERCENT
1	56	23%	49	17%	69	19%
2	402	53%	540	53%	489	44%
3	145	11%	134	9%	186	9%
4	105	4%	125	4%	162	4%
5	111	24%	136	24%	236	30%
6	20	5%	26	5%	74	10%
7	87	12%	125	20%	173	25%
8	9	1%	11	3%	116	22%
9	159	21%	211	22%	251	21%
10	37	2%	50	10%	132	18%
11	214	11%	236	10%	288	10%
12	53	8%	53	8%	54	5%
13	40	9%	65	12%	112	19%
14	146	13%	152	12%	217	12%
15	106	6%	97	5%	71	3%
16	302	48%	317	42%	401	42%
17	67	10%	93	13%	122	14%
18	247	18%	340	20%	395	17%
19	56	4%	106	5%	149	5%
20	168	16%	165	12%	201	10%
21	162	21%	223	27%	268	25%
22	100	9%	145	10%	211	10%
23	23	4%	23	3%	32	3%
24	197	9%	163	9%	242	10%
25	151	5%	224	8%	288	8%
26	99	15%	163	20%	169	17%
27	20	5%	32	6%	35	5%
28	151	12%	137	9%	169	9%
29	21	6%	24	6%	49	9%
30	87	11%	133	14%	267	18%
31	46	12%	57	12%	74	13%
32	152	12%	182	12%	239	13%
TOTAL	3,749	12%	4,538	12%	5,941	13%

TABLE 5
DESCENDING ARRAY OF 1979 PERCENT
OF MEDICARE DIALYSIS POPULATION IN THE HOME
BY ESRD NETWORK

NETWORK	PERCENT OF MEDICARE DIALYSIS POPULATION IN THE HOME: 1979
2	44% (53%)
16	42% (42%)
5	30% (24%)
7	25% (20%)
21	25% (27%)
8	22% (3%)
9	21% (22%)
13	19% (12%)
1	19% (17%)
10	18% (10%)
30	18% (14%)
18	17% (20%)
26	17% (20%)
17	14% (13%)
31	13% (12%)
32	13% (12%)
14	12% (12%)
20	10% (12%)
24	10% (9%)
22	10% (10%)
11	10% (10%)
6	10% (5%)
3	9% (9%)
29	9% (6%)
28	9% (9%)
25	8% (8%)
27	5% (5%)
19	5% (5%)
12	5% (8%)
4	4% (4%)
15	3% (5%)
23	3% (3%)

PARENTHETICAL FIGURES REPRESENT COMPARATIVE 1978 NETWORK
 PERCENT OF MEDICARE DIALYSIS POPULATION AT HOME

Transplants*

SUMMARY OF ACTIVITY

During 1979, 4,271 kidney transplants were performed. This is the first year in which more than 4,000 transplants were performed. During the previous two years, the number of transplants performed had remained steady. The increase was led by ten networks in which the increase in transplants was more than triple the national increase of 8.2 percent.

The absolute number of transplants involving living related donors (LRD) increased slightly, but the proportion of total transplants with living donors decreased. The percentage decrease is consistent with experience in other countries which have shown a continued trend toward an increasing percentage of cadaveric donor transplants.

TABLE 6
ANNUAL DISTRIBUTION OF KIDNEY
TRANSPLANTS BY SOURCE OF
DONOR ORGAN

Calendar Year	Total Transplants	Living		Cadaveric	
		Donor	Donor	Donor	Donor
1979	4,271	1,205	28.2%	3,066	71.5%
1978	3,949	1,172	29.7%	2,777	70.3%
1977	3,973	1,495	37.6%	2,488	62.4%

The number of living related donor transplants in 1979 was 1,205, a 2.9 percent increase over 1978. Cadaveric transplants, on the other hand, increased by 10.4 percent with 289 more such transplants being performed in 1979 than in

1978. Eight networks showed an increase in LRD transplants of more than 30 percent; four decreased such transplants by more than 30 percent; most networks showed a modest change. The trend toward an increase in the proportion of cadaveric transplants appears to be slowing (Table 7), but no firm conclusions can be drawn from the small change between 1978 and 1979.

PATIENTS AWAITING ORGANS*

Patients may be on either formal or informal transplant registries, a fact which hampers efforts to identify the patients waiting for organs. However, the dialysis facilities report that 6,311 of their patients were on registries awaiting organs for transplant. The transplant centers, however, reported only 3,369 patients on their transplant registries currently undergoing active dialysis. This perceptual difference highlights one of the difficulties in establishing a national transplant registry: dialysis facilities are not always informed when an individual they refer does not report to, or is removed from, a transplant registry, either because of an adverse change in the state of the patient's health or his refusal to undergo a transplant. Consequently, dialysis facilities may believe that an individual is on a transplant registry when that is not the case.

Due to changes in the reporting method, it is impossible to directly compare the 1979 figures with those of previous years. It is, however, apparent that a significant number of pa-

*Section 1881(g)(4): "the number of kidney transplants by source of donor organ"

*Section 1881(g)(5): "the number of patients awaiting organs for transplant"

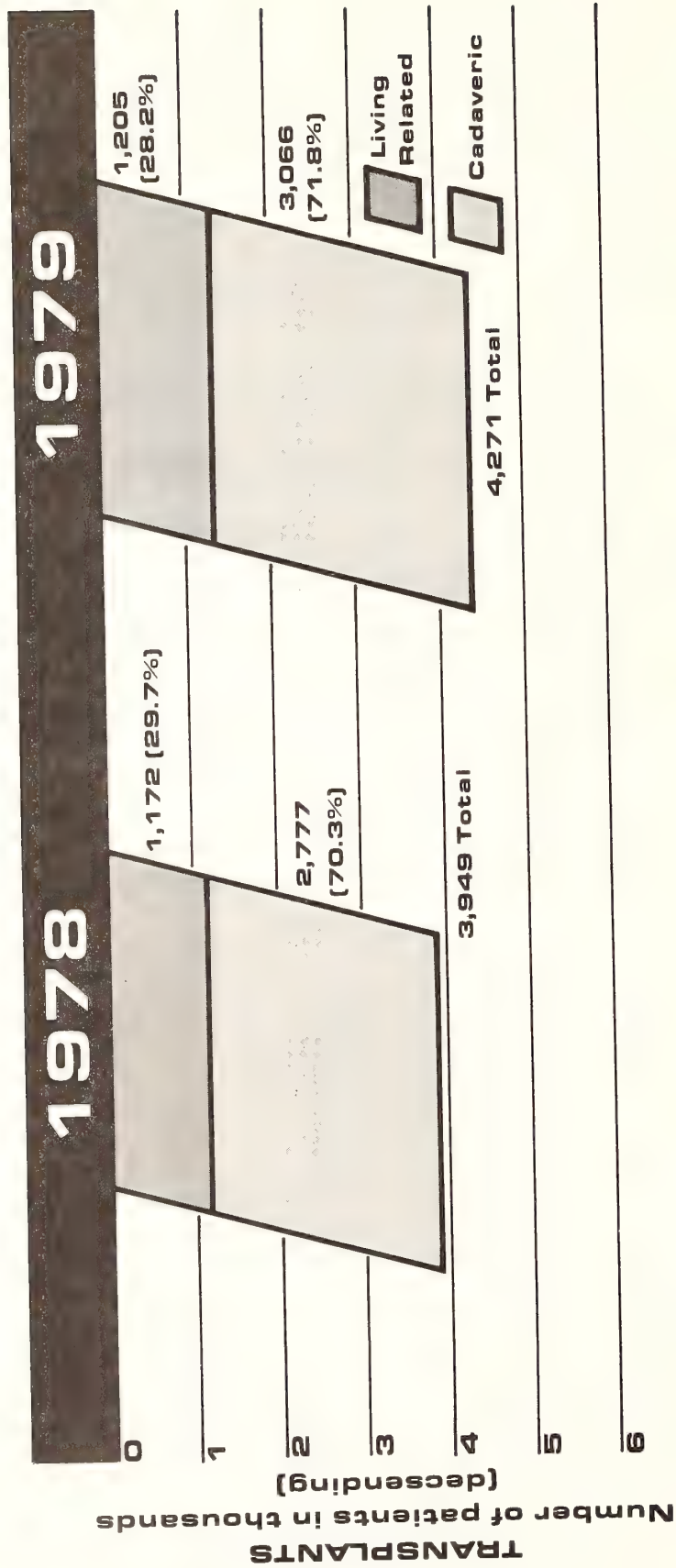


FIGURE 7. TRANSPLANTS 1978-1979

tients meeting the applicable selection criteria did not receive a transplant. During 1979, the Health Care Financing Administration and the Center for Disease Control began to plan a project to increase the number of kidneys harvested from suitable donors, a project which expected to support continued increases in cadaveric donor transplants.

During 1979 HCFA also began assessing the need for additional public education aimed at informing ESRD patients of the advantages of transplantation and their right of access to the surgery. The result of a public education project should be to increase the number of patients selecting transplantation.

TRANSPLANT FAILURES*

Information on the specific number of transplant failures is not available. Preliminary results from the system under development could not be considered reliable. Since the major obstacle to data collection is the question of the definition of "failure," the Health Care Financing Administration (HCFA) has been working closely with members of the medical and transplantation communities to formulate standardized definitions. These will be put into use during 1980, thus enabling HCFA, in collaboration with the National Institutes of Health, to prepare a national transplant registry. This registry will report transplant failures and successes by donor type and by transplant center.

The American Society of Transplant Surgeons has reported to us that their search of the literature indicates that transplants involving living related donors have a graft survival at two years of 75-80 percent. Transplants involving cadaveric donors have a graft survival at

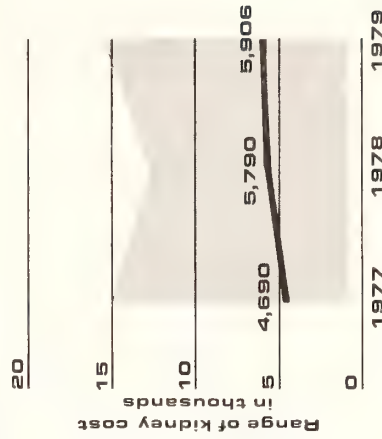
one to two years of 57-70 percent. They also reported a dramatic drop in mortality rates at many transplant centers to a level of less than 5 percent.

KIDNEY ACQUISITION COST*

The ESRD reimbursement system contains reasonable charge data on kidney acquisitions rather than actual cost information. Charge data are received as individual bills and are recorded in the ESRD data system when the bill is submitted. Cost data are not available until the close of a fiscal year and are not analyzed separately for ESRD patients. The national average kidney acquisition charges for calendar years 1977, 1978, and 1979 were \$4,690, \$5,790, and \$5,906, respectively.

The range of kidney acquisition charges for those years are as follows:

**FIGURE 8.
RANGE OF KIDNEY ACQUISITION CHARGES
1977-1979**



See Table 9 for the range of kidney acquisition charges by HHS Region.

*Section 1881(g)(6): "the number of transplant failures"

*Section 1881(g)(7): "the range of costs of kidney acquisitions, by type of facility and by region"

TABLE 7
ESRD NETWORK DISTRIBUTION OF KIDNEY TRANSPLANTS
BY SOURCE OF DONOR KIDNEY
TRANSPLANTS REPORTED IN CALENDAR 1979

ESRD NETWORK	FACILITIES SURVEYED REPORTING		TRANSPLANTS	LIVING RELATED		CADAVERIC	
1	1	1	18	4	22.2%	14	77.8%
2	4	4	140	56	40.0%	84	60.0%
3	3	3	221	44	19.9%	177	80.1%
4	11	11	221	57	25.8%	164	74.2%
5	4	3	59	13	22.0%	46	78.0%
6	4	4	86	36	41.9%	50	58.1%
7	3	3	239	121	50.6%	118	49.4%
8	2	2	104	21	20.2%	83	79.8%
9	7	7	142	17	12.0%	125	88.0%
10	5	5	84	35	41.7%	49	58.3%
11	7	7	252	81	32.1%	171	67.9%
12	4	4	59	25	42.4%	34	57.6%
13	2	2	175	36	20.6%	139	79.4%
14	11	11	188	42	22.3%	146	77.7%
15	7	5	132	27	20.5%	105	79.5%
16	3	3	87	31	35.6%	56	64.4%
17	6	6	145	29	20.0%	116	80.0%
18	4	4	217	92	42.4%	125	57.6%
19	4	4	98	46	46.9%	52	53.1%
20	4	4	104	18	17.3%	86	82.7%
21	4	4	116	38	32.8%	78	67.2%
22	6	6	234	41	17.5%	193	82.5%
23	5	5	79	28	35.4%	51	64.6%
24	5	5	163	55	33.7%	108	66.3%
25	6	6	263	41	15.6%	222	84.4%
26	6	6	106	32	30.2%	74	69.8%
27	2	2	48	16	33.3%	32	66.7%
28	9	9	185	79	42.7%	106	57.3%
29	1	1	11	8	72.7%	3	27.3%
30	5	5	122	13	10.7%	109	89.3%
31	3	3	95	19	20.0%	76	80.0%
32	3	3	78	4	5.1%	74	94.9%
TOTAL	151	148	4,271	1,205	28.2%	3,066	71.8%

PERCENTAGES MAY NOT ADD TO 100.0% DUE TO ROUNDING

TABLE 8
ESRD NETWORK COMPARISON
OF 1979 PATIENTS AWAITING TRANSPLANTS

ESRD NETWORK	DIALYSIS FACILITY		TRANSPLANT FACILITY		1979 TRANSPLANTS
	DIALYSIS FACILITY	DIALYSIS	DIALYSIS NON-DIALYSIS	TRANSPLANTS	
1	146	130	0	18	18
2	182	31	1	140	140
3	364	492	26	221	221
4	305	186	4	221	221
5	74	29	4	59	59
6	36	18	2	86	86
7	169	279	13	239	239
8	161	150	4	104	104
9	176	41	6	142	142
10	156	92	7	84	84
11	313	192	11	252	252
12	117	90	4	59	59
13	132	161	6	175	175
14	176	98	6	188	188
15	323	271	5	132	132
16	158	97	1	87	87
17	168	121	38	145	145
18	245	375	7	217	217
19	241	92	0	98	98
20	223	78	1	104	104
21	145	61	11	116	116
22	455	223	3	234	234
23	106	101	7	79	79
24	213	136	0	163	163
25	500	470	8	263	263
26	264	266	0	106	106
27	62	45	3	48	48
28	268	254	6	185	185
29	42	7	0	11	11
30	188	126	0	122	122
31	71	44	0	95	95
32	199	155	5	78	78
TOTAL	6,378	4,911	189	4,271	4,271

TABLE 9
AVERAGE AND RANGE OF KIDNEY ACQUISITION CHARGES
BY REGION AND CALENDAR YEAR

REGION	1977			1978			1979		
	HIGH	LOW	AVG.	HIGH	LOW	AVG.	HIGH	LOW	AVG.
Boston	2,300	2,100	2,200	4,900	1,360	2,485	6,900	2,000	4,997
New York	15,000	1,300	6,217	9,075	1,500	6,302	15,000	7,652	10,435
Philadelphia	12,381	1,860	4,564	12,683	1,500	5,220	12,381	4,000	5,463
Atlanta	9,182	2,400	5,326	9,230	1,000	5,417	15,455	1,318	5,884
Chicago	11,500	1,000	4,574	9,925	1,825	6,879	9,330	1,740	6,280
Dallas	7,800	1,185	3,582	7,800	1,500	4,734	7,800	2,050	5,236
Kansas City	9,450	1,579	4,697	8,700	3,500	5,030	9,377	1,579	5,555
Denver	7,000	2,400	5,231	7,000	2,400	4,563	8,600	2,400	4,975
San Francisco	5,266	4,500	4,847	6,000	1,025	5,022	9,000	1,065	4,436
Seattle	10,400	2,300	4,057	10,400	3,000	7,038	11,385	1,125	6,791
National	15,000	1,000	4,690	12,683	1,000	5,790	15,455	1,065	5,906

TABLE 10
AVERAGE RANGE OF ESTIMATED KIDNEY ACQUISITION COSTS
BY REGION AND CALENDAR YEAR

REGION	1977			1978			1979		
	HIGH	LOW	AVG.	HIGH	LOW	AVG.	HIGH	LOW	AVG.
Boston	2,024	1,848	1,936	4,361	1,210	2,212	6,279	1,820	4,547
New York	13,200	1,144	5,471	8,077	1,335	5,609	13,650	6,963	9,496
Philadelphia	10,895	1,637	4,016	11,288	1,335	4,646	11,267	3,540	4,971
Atlanta	8,080	2,112	4,687	8,214	890	4,821	14,064	1,199	5,354
Chicago	10,120	880	4,025	8,833	1,624	6,122	8,490	1,583	5,715
Dallas	6,864	1,043	3,152	6,942	1,335	4,213	7,098	1,866	4,765
Kansas City	8,316	1,390	4,133	7,743	3,115	4,477	8,533	1,437	5,055
Denver	6,160	2,112	4,603	6,230	2,136	4,079	7,826	2,184	4,527
San Francisco	4,634	3,960	4,265	5,340	912	4,470	8,190	969	4,037
Seattle	9,152	2,024	3,570	9,256	2,670	6,264	10,360	1,024	6,180
National	13,200	880	4,127	11,288	890	5,153	14,064	969	5,374

TABLE 11
ESRD NETWORK DISTRIBUTION OF TRANSPLANTS
ARRAYED BY NUMBER OF TRANSPLANTS PERFORMED

ESRD NETWORK	FACILITIES SURVEYED REPORTED	TRANSPLANTS	0 THRU 6	7 THRU 14	15 THRU 24	25 THRU 49	50 OR MORE
1	1	18	0	0	1	0	0
2	4	140	0	0	2	1	1
3	3	221	0	0	1	1	1
4	11	221	1	5	2	2	1
5	4	59	1	1	0	1	0
6	4	86	1	0	1	2	0
7	3	239	0	0	0	1	2
8	2	104	0	0	0	1	1
9	7	142	0	2	3	2	0
10	5	84	0	1	4	0	0
11	7	252	1	1	1	2	2
12	4	59	0	1	1	1	0
13	2	175	0	0	0	0	2
14	11	188	1	4	4	2	0
15	7	132	0	2	1	2	0
16	3	87	1	0	0	1	1
17	6	145	0	2	1	3	0
18	4	217	0	1	1	0	2
19	4	98	0	0	1	3	0
20	4	104	0	1	0	3	0
21	4	115	0	0	2	2	0
22	6	234	0	0	1	4	1
23	5	79	1	1	2	1	0
24	5	163	0	2	1	1	1
25	6	263	0	0	2	2	2
26	6	106	1	1	3	1	0
27	2	48	0	0	1	1	0
28	9	195	1	1	5	2	0
29	1	11	0	1	0	0	0
30	5	122	1	1	0	3	0
31	3	95	0	0	2	0	1
32	3	78	0	0	1	2	0
TOTAL	157	4,271	10	28	44	47	18
NATIONAL TOTAL			6.5%	24.7%	53.2%	83.8%	95.5%

PERCENTAGES MAY NOT ADD TO 100.0% DUE TO ROUNDING

In order to approximate the average and ranges of costs of kidney acquisitions, a sample of all Medicare hospitals was used to obtain an average total annual cost to total annual charges ratio for hospitals. The charges listed above were then multiplied by this ratio for the appropriate year (.88 for 1977, .89 for 1978, and .91 for 1979), arriving at the costs listed below.

The estimated national average kidney acquisition costs for calendar years 1977, 1978, and 1979 were \$4,127, \$5,153, and \$5,374, respectively. The range of estimated kidney acquisition costs for those years are as follows:

FIGURE 9.
ESTIMATE OF KIDNEY ACQUISITION COST
1977-1979



See Table 10 for the range of kidney acquisition costs by HHS Region.

FACILITIES*

As of December 31, 1979, there were 151 hospitals approved as transplant centers. Transplant centers are grouped according to the minimum utilization rate (MUR) certification standards. To achieve unconditional certification, a facility

must perform 15 or more transplants per year; for conditional certification, a facility must perform 7-14 transplants per year; for exception certification, a facility must perform less than seven transplants per year. One view is that transplantation success is more predictable at centers performing larger numbers of procedures. Exception certification is granted only when requiring a higher level of performance would adversely affect ESRD program objectives, such as when a pediatric transplant center has low utilization.

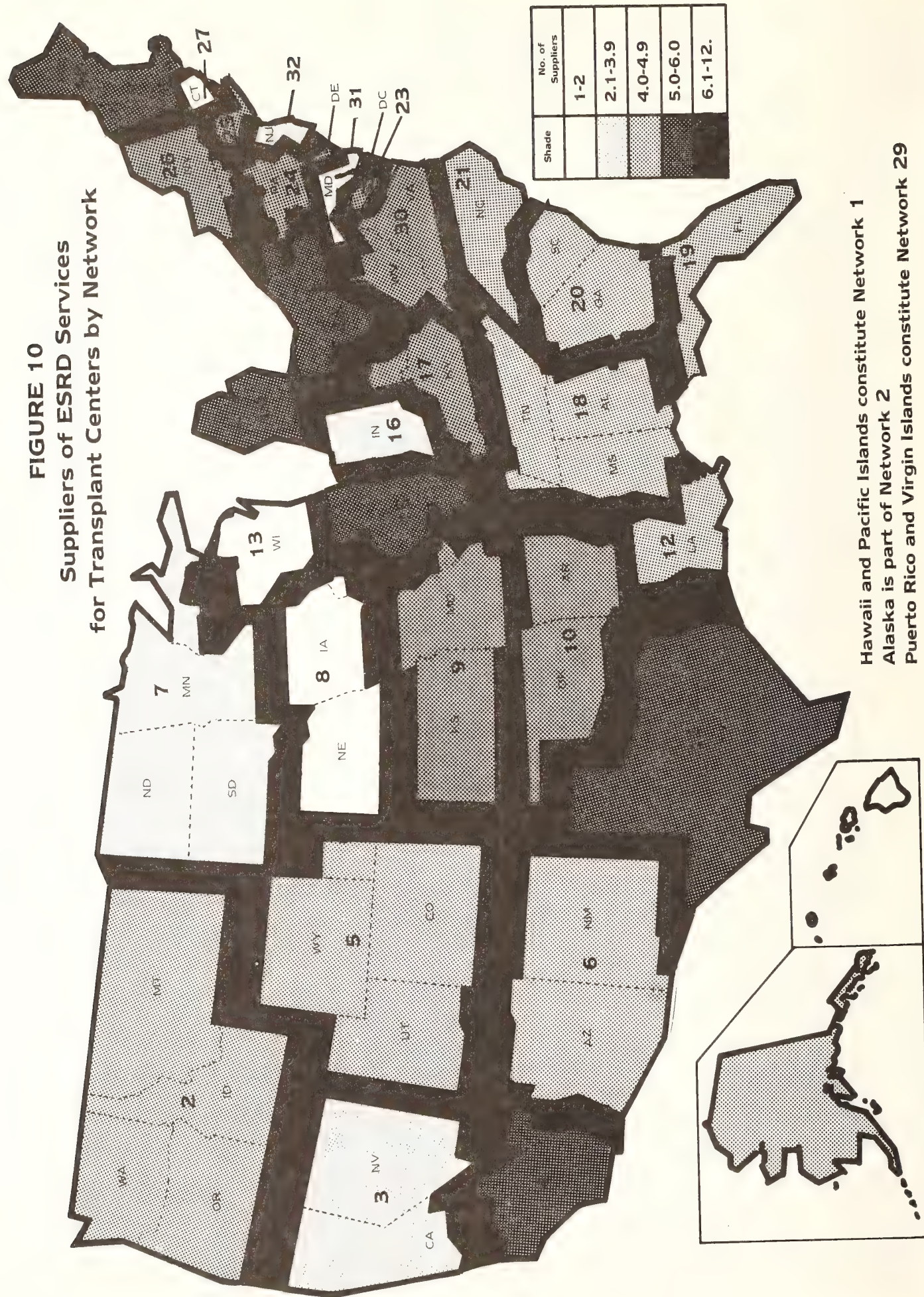
The chart below shows the range of the numbers of transplants performed, as reported by the facilities, for 1979.

TABLE 12
RANGE OF THE NUMBERS OF TRANSPLANTS
PERFORMED AS REPORTED BY THE
FACILITIES FOR 1979

Range of Number of Transplants Performed	Number of Centers	Percent	Accumulated Percent
0 - 6	11	7.4	7.4
7 - 14	27	18.2	25.6
15 - 24	44	29.8	55.4
25 - 49	47	31.8	87.2
50 or more	19	12.8	100.0

Similar reports for 1978 showed 30.9 percent of the transplant centers did 14 or fewer transplants. That figure has decreased to 25.6 percent in 1979. With no significant growth in the number of approved transplant centers expected, this trend should continue toward decreasing numbers of transplant centers performing 14 or fewer transplants.

*Section 1881(g)(8): "the number of facilities providing transplants and the number of transplants performed per facility"



Hawaii and Pacific Islands constitute Network 1

Alaska is part of Network 2

Alaska is part of Network 29
Puerto Rico and Virgin Islands constitute Network 29

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE	ZIP	LIVING	CADAVERIC	TOTAL
* * * N A T I O N A L T O T A L S * * *					
1	120010 ST. FRANCIS HOSPITAL HONOLULU, HAWAII 96817		4	14	18
	* NETWORK TOTALS *				18
2	380009 UNIVERSITY OF OREGON MEDICAL SCHOOL HOSPIT PORTLAND, OREGON 97201		17	52	69
2	500005 VIRGINIA MASON HOSPITAL RENAL SEATTLE, WASHINGTON 98101		6	11	17
2	500008 UNIVERSITY HOSPITAL RENAL SEATTLE, WASHINGTON 98195		23	9	32
2	500027 SWEDISH HOSPITAL MEDICAL CENTER SEATTLE, WASHINGTON 98104		10	12	22
	* NETWORK TOTALS *				140
3	050047 PRESBYTERIAN HOSPITAL OF PACIFIC SAN FRANCISCO, CALIFORNIA 94115		2	42	44
3	050454 UNIVERSITY OF CALIFORNIA HOSPITAL SAN FRANCISCO, CA 94122		40	113	153

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
 (continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
3	050599 SACRAMENTO MEDICAL CENTER SACRAMENTO, CALIFORNIA 95817	2	22	24
		44	177	221
	* NETWORK TOTALS *			
4	050025 UNIVERSITY HOSPITAL OF SAN DIEGO COUNTY SAN DIEGO, CALIFORNIA 92103	3	10	13
4	050069 ST. JOSEPH HOSPITAL HEMODIALYSIS CTR. ORANGE, CALIFORNIA 92668	1	6	7
4	050123 CHILDREN'S HOSPITAL OF LOS ANGELES LOS ANGELES, CALIFORNIA 90027	5	33	38
4	050245 SAN BERNARDINO COUNTY MEDICAL CENTER SAN BERNARDINO, CA 92404	1	21	22
4	050262 UCLA HOSPITAL - CENTER FOR THE HEALTH SCI. LOS ANGELES, CA 90024	12	13	25
4	050327 LOMA LINDA UNIVERSITY MEDICAL CTR LOMA LINDA, CA 92354	2	8	10
4	050348 UNIV. OF CALIFORNIA, IRVINE ORANGE, CALIFORNIA 92668	3	17	20
4	050373 LOS ANGELES COUNTY/USC MEDICAL CTR. LOS ANGELES, CA 90033	4	9	13
4	050376 LOS ANGELES COUNTY--HARBOR-UCLA MEDICAL CE TORRANCE, CA 90502	0	1	1
4	050502 ST. VINCENT'S HOSPITAL LOS ANGELES, CALIFORNIA 90057	22	40	62

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
4	050625 CEDARS-SINAI MEDICAL CENTER LOS ANGELES, CA 90048	4	6	10
	* NETWORK TOTALS *	57	164	221
5	060024 COLORADO GENERAL HOSPITAL DENVER, COLORADO 80262	4	42	46
5	460009 UNIVERSITY OF UTAH RENAL TRANSPLANTATION SALT LAKE CITY, UTAH 84112	9	3	12
5	46002F VETERANS'S ADMINISTRATION HOSPITAL SALT LAKE CITY, UTAH 84113	0	1	1
	* NETWORK TOTALS *	13	46	59
6	030002 GOOD SAMARITAN HOSPITAL PHOENIX, ARIZONA 85006	15	17	32
6	030024 ST. JOSEPH'S HOSPITAL AND MEDICAL CENTER PHOENIX, ARIZONA 85001	2	1	3
6	03013F VETERANS ADMINISTRATION HOSPITAL TUCSON, ARIZONA 85723	10	11	21
6	320001 BERNALILLO COUNTY MEDICAL CENTER ALBUQUERQUE, NEW MEXICO 87106	9	21	30
	* NETWORK TOTALS *	36	50	86

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE	ZIP	LIVING	CADAVERIC	TOTAL
7	240004 HENNEPIN COUNTY MEDICAL CENTER MINNEAPOLIS, MINNESOTA 55415		1	37	38
7	240049 UNIVERSITY OF MINNESOTA HOSPITALS MINNEAPOLIS, MINNESOTA 55455		94	55	149
7	240061 ROCHESTER METHODIST HOSPITAL ROCHESTER, MINNESOTA 55901		26	26	52
	* NETWORK TOTALS *		121	118	239
8	160058 UNIVERSITY OF IOWA HOSPITALS AND CLINICS IOWA CITY, IOWA 52242		18	50	68
8	280088 BISHOP CLARKSON MEMORIAL HOSPITAL OMAHA, NEBRASKA 68105		3	33	36
	* NETWORK TOTALS *		21	83	104
9	170040 UNIVERSITY OF KANSAS MEDICAL CENTER KANSAS CITY, KANSAS 66103		1	17	18
9	260014 BARNES HOSPITAL ST. LOUIS, MISSOURI 63110		10	29	39
9	260027 RESEARCH MEDICAL CENTER, NEPHROLOGY DEPT. KANSAS CITY, MISSOURI 64132		0	16	16
9	26009F VA HOSPITAL ST. LOUIS, MISSOURI 63125		2	21	23

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
[continued]

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
9	260101 ST. LOUIS CHILDREN'S HOSPITAL ST. LOUIS, MISSOURI 63110	1	6	7
9	260138 ST. LUKE'S HOSPITAL KANSAS CITY, MISSOURI 64141	2	23	25
9	260141 UNIVERSITY OF MISSOURI MEDICAL CENTER COLUMBIA, MISSOURI 65212	1	13	14
	* NETWORK TOTALS *	17	125	142
10	040016 UNIVERSITY OF ARKANSAS MEDICAL CENTER LITTLE ROCK, ARKANSAS 72201	12	6	18
10	370001 HILLCREST MEDICAL CENTER TULSA, OKLAHOMA 74104	6	9	15
10	370035 UNIVERSITY HOSPITAL AND CLINIC OKLAHOMA CITY, OKLAHOMA 73125	8	15	23
10	370037 ST. ANTHONY HOSPITAL OKLAHOMA CITY, OKLAHOMA 73102	5	15	20
10	370167 OKLAHOMA CHILDREN'S MEMORIAL HOSPITAL OKLAHOMA CITY, OK 73104	4	4	8
	* NETWORK TOTALS *	35	49	84

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE	ZIP	LIVING	CADAVERIC	TOTAL
11	450015 DALLAS COUNTY HOSPITAL DISTRICT DALLAS, TEXAS 75235		26	44	70
11	450018 UNIVERSITY OF TEXAS MEDICAL BRANCH GALVESTON, TEXAS 77550		15	31	46
11	450068 HERMAN HOSPITAL HOUSTON, TEXAS 77025		18	48	66
11	450124 BRACKENRIDGE HOSPITAL AUSTIN, TEXAS 78701		1	10	11
11	450213 BEXAR COUNTY HOSPITAL DISTRICT SAN ANTONIO, TEXAS 78284		11	26	37
11	450358 THE METHODIST HOSPITAL ANNEX HOUSTON, TEXAS 77030		7	12	19
11	450686 HEALTH SCIENCES CENTER HOSPITAL LUBBOCK, TEXAS 79409		3	0	3
	* NETWORK TOTALS *		81	171	252
12	190098 L. S. U. MEDICAL CENTER SHREVEPORT, LOUISIANA 71130		11	17	28
12	190135 SOUTHERN BAPTIST HOSPITAL NEW ORLEANS, LOUISIANA 70175		5	8	13
12	190176 TULANE MEDICAL CENTER HOSPITAL NEW ORLEANS, LOUISIANA 70112		9	9	18
	* NETWORK TOTALS *		25	34	59

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE	ZIP	LIVING	CADAVERIC	TOTAL
13	520098 UNIVERSITY OF WISCONSIN HOSPITALS MADISON, WISCONSIN	53792	26	71	97
13	520174 MILWAUKEE COUNTY MEDICAL COMPLEX WAUWATOSA, WISCONSIN	53226	10	68	78
* NETWORK TOTALS *					
			36	139	175
14	230039 MOUNT CARMEL MERCY HOSPITAL AND DETROIT, MICHIGAN	48235	0	8	8
14	230046 UNIVERSITY HOSPITAL ANN ARBOR, MICHIGAN	48109	16	20	36
14	230053 HENRY FORD HOSPITAL-MAIN CAMPUS DETROIT, MICHIGAN	48202	7	28	35
14	230059 SAINT MARY'S HOSPITAL GRAND RAPIDS, MICHIGAN	49502	7	17	24
14	230076 HUTZEL HOSPITAL DETROIT, MICHIGAN	48201	3	19	22
14	23011F VETERAN'S ADMINISTRATION HOSPITAL ANN ARBOR, MICHIGAN	48105	0	4	4
14	230117 BORGESS HOSPITAL KALAMAZOO, MICHIGAN	49001	3	13	16
14	230130 WILLIAM BEAUMONT HOSPITAL ROYAL OAK, MICHIGAN	48072	2	14	16
14	230132 HURLEY MEDICAL CENTER FLINT, MICHIGAN	48502	1	7	8

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
 (continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
14	230230 EDWARD W. SPARROW HOSPITAL LANSING, MICHIGAN 48902	2	5	7
14	230240 CHILDREN'S HOSPITAL OF MICHIGAN DETROIT, MICHIGAN 48201	1	11	12
	* NETWORK TOTALS *	42	146	188
15	140088 UNIVERSITY OF CHICAGO MEDICAL CENTER CHICAGO, ILLINOIS 60637	9	40	49
15	140148 MEMORIAL MEDICAL CENTER SPRINGFIELD, ILLINOIS 62702	4	9	13
15	140150 UNIVERSITY OF ILLINOIS HOSPITAL CHICAGO, ILLINOIS 60612	9	36	45
16	140281 NORTHWESTERN MEMORIAL HOSPITAL CHICAGO, ILLINOIS 60611	3	14	17
15	140283 CHILDREN'S MEMORIAL HOSPITAL CHICAGO, ILLINOIS 60614	2	6	8
	* NETWORK TOTALS *	27	105	132

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
[continued]

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
16	15003F VETERAN'S ADMINISTRATION HOSPITAL INDIANAPOLIS, INDIANA 46202	0	1	1
16	150032 INDIANA UNIVERSITY HOSPITAL INDIANAPOLIS, INDIANA 44223	21	38	59
16	150056 METHODIST HOSPITAL OF INDIANA, INC. INDIANAPOLIS, INDIANA 46202	10	17	27
	* NETWORK TOTALS *	31	56	87
17	180040 JEWISH HOSPITAL LOUISVILLE, KENTUCKY 40202	7	25	32
17	180067 UNIVERSITY OF KENTUCKY MEDICAL CENTER LEXINGTON, KENTUCKY 40506	12	28	40
17	360003 CINCINNATI GENERAL HOSPITAL CINCINNATI, OHIO 45267	6	27	33
17	360051 MIAMI VALLEY HOSPITAL DAYTON, OHIO 45409	1	16	17
17	360163 THE CHRIST HOSPITAL CINCINNATI, OHIO 45219	1	12	13
17	360226 CHILDREN'S HOSPITAL MEDICAL CENTER CINCINNATI, OHIO 45229	2	8	10
	* NETWORK TOTALS *	29	116	145

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
[continued]

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
18	010033 UNIVERSITY OF ALABAMA HOSPITALS BIRMINGHAM, ALABAMA 35233	46	43	89
18	250001 UNIVERSITY HOSPITAL JACKSON, MISSISSIPPI 39216	2	6	8
18	440039 VANDERBILT UNIVERSITY HOSPITAL NASHVILLE, TENNESSEE 37232	30	69	99
18	440152 CITY OF MEMPHIS HOSPITAL MEMPHIS, TENNESSEE 38163	14	7	21
	* NETWORK TOTALS *	92	125	217
19	100007 FLORIDA HOSPITAL DIALYSIS UNIT ORLANDO, FLORIDA 32803	7	9	16
19	100022 JACKSON MEMORIAL HOSPITAL MIAMI, FLORIDA 33136	22	6	28
19	100113 SHANDS TEACHING HOSPITAL GAINESVILLE, FLORIDA 32610	12	17	29
19	100128 TAMPA GENERAL HOSPITAL DIALYSIS UNIT TAMPA, FLORIDA 33606	5	20	25
	* NETWORK TOTALS *	46	52	98

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
[continued]

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
20	110010 EMORY UNIVERSITY HOSPITAL ATLANTA, GEORGIA 30322	6	35	41
20	110034 EUGENE TALMADGE MEMORIAL HOSPITAL AUGUSTA, GEORGIA 30901	6	19	25
20	110079 THE ATLANTA REGIONAL NEPHROLOGY CENTER ATLANTA, GEORGIA 30303	2	8	10
20	420004 MEDICAL UNIVERSITY HOSPITAL 171 ASHLEY AVENUE CHARLESTON, SOUTH CAROLINA 29403	4	24	28
	* NETWORK TOTALS *	18	86	104
21	340030 DUKE UNIVERSITY HOSPITAL DURHAM, NORTH CAROLINA 27710	21	27	48
21	340047 NORTH CAROLINA BAPTIST HOSPITAL, INC. WINSTON-SALEM, NORTH CAROLINA 27103	7	15	22
21	340061 THE NORTH CAROLINA MEMORIAL HOSPITAL CHAPEL HILL, NORTH CAROLINA 27514	9	10	19
21	340113 CHARLOTTE MEMORIAL HOSPITAL CHARLOTTE, NORTH CAROLINA 28234	1	26	27
	* NETWORK TOTALS *	38	78	116

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
 (continued)

NETWORK	PROVIDER CITY, STATE	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME ZIP	LIVING	CADAVERIC	TOTAL
22	360015 AKRON CITY HOSPITAL AKRON, OHIO 44309		4	11	15
22	360048 MEDICAL COLLEGE OF OHIO AT TOLEDO TOLEDO, OHIO 43614		3	28	31
22	360085 OHIO STATE UNIVERSITY HOSPITALS COLUMBUS, OHIO 43210		14	24	38
22	360137 UNIVERSITY HOSPITALS OF CLEVELAND CLEVELAND, OHIO 44106		4	39	43
22	360180 CLEVELAND CLINIC FOUNDATION CLEVELAND, OHIO 44106		13	49	62
22	390164 PRESBYTERIAN UNIVERSITY HOSPITAL PITTSBURGH, PENNSYLVANIA 15213		3	42	45
* NETWORK TOTALS *			41	193	234
23	090001 GEORGE WASHINGTON UNIVERSITY WASHINGTON, D.C. 20037		3	15	18
23	090003 HOWARD UNIVERSITY HOSPITAL WASHINGTON, D.C. 20060		1	5	6
23	090004 GEORGETOWN UNIVERSITY HOSPITAL WASHINGTON, D.C. 20007		14	17	31
23	090011 WASHINGTON HOSPITAL CENTER WASHINGTON, D.C. 20010		7	10	17

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER			LIVING	CADAVERIC	TOTAL
	PROVIDER NAME	CITY, STATE	ZIP			
23	090014 CHILDREN'S HOSPITAL NATIONAL WASHINGTON, D.C. 20010			3	4	7
	* NETWORK TOTALS *			28	51	79
24	390051 HAHNEMANN MEDICAL COLLEGE PHILADELPHIA, PENNSYLVANIA 19102			13	31	44
24	390111 HOSPITAL OF THE UNIV. OF PA. PHILADELPHIA, PENNSYLVANIA 19104			28	47	75
24	390142 ALBERT EINSTEIN MEDICAL CENTER, PHILADELPHIA, PENNSYLVANIA 19141			10	13	23
24	390174 THOMAS JEFFERSON UNIVERSITY HOSPITAL PHILADELPHIA, PENNSYLVANIA 19107			2	9	11
24	390259 ST. CHRISTOPHER'S HOSPITAL PHILADELPHIA, PENNSYLVANIA 19133			2	8	10
	* NETWORK TOTALS *			55	108	163
25	330012 THE PRESBYTERIAN HOSPITAL NEW YORK, NEW YORK 10032			5	23	28
25	330024 MOUNT SINAI HOSPITAL NEW YORK, NEW YORK 10029			2	13	15
25	330059 MONTEFIORE HOSPITAL AND BRONX, NEW YORK 10467			1	28	29
25	330101 NEW YORK HOSPITAL NEW YORK, NEW YORK 10021			14	39	53

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
 (continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
25	330120 ST. LUKE'S HOSPITAL CENTER NEW YORK, NEW YORK 10025	3	12	15
25	330350 STATE UNIVERSITY HOSPITAL OF BROOKLYN, NEW YORK 11203	16	107	123
	* NETWORK TOTALS *	41	222	263
26	330005 BUFFALO GENERAL HOSPITAL BUFFALO, NEW YORK 14203	7	9	16
26	330013 ALBANY MEDICAL CENTER ALBANY, NEW YORK 12208	1	23	24
26	330219 EDWARD J. MEYER MEMORIAL HOSPITAL BUFFALO, NEW YORK 14215	4	3	7
26	330241 STATE UNIVERSITY HOSPITAL OF THE SYRACUSE, NEW YORK 13210	15	25	40
26	330285 STRONG MEMORIAL HOSPITAL ROCHESTER, NEW YORK 14642	5	13	18
26	330377 THE CHILDREN'S HOSPITAL OF BUFFALO BUFFALO, NEW YORK 14222	0	1	1
	* NETWORK TOTALS *	32	74	106

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
27	070022 YALE-NEW HAVEN HOSPITAL NEW HAVEN, CONNECTICUT 06504	8	9	17
27	070025 HARTFORD HOSPITAL HARTFORD, CONNECTICUT 06115	8	23	31
	* NETWORK TOTALS *	16	32	48
28	200009 MAINE MEDICAL CENTER PORTLAND, MAINE 04102	6	10	16
28	220031 UNIVERSITY HOSPITAL BOSTON, MASSACHUSETTS 02118	0	6	6
28	220071 MASS. GENERAL HOSPITAL BOSTON, MASS. 02114	12	31	43
28	220086 BETH ISRAEL HOSPITAL BOSTON, MASS. 02215	7	8	15
28	220110 PETER BENT BRIGHAM HOSPITAL BOSTON, MASSACHUSETTS 02115	20	19	39
28	220116 TUFTS-NEW ENGLAND MEDICAL CENTER BOSTON, MASSACHUSETTS 02111	6	9	15
28	220118 NEW ENGLAND DEACONESS HOSPITAL BOSTON, MASS. 02215	11	12	23
28	220122 CHILDREN'S HOSPITAL MEDICAL CENTER BOSTON, MASSACHUSETTS 02115	13	4	17
28	470003 MEDICAL CENTER HOSPITAL OF VERMONT BURLINGTON, VERMONT 05401	4	7	11
	* NETWORK TOTALS *	79	106	185

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER IDENTIFICATION NUMBER PROVIDER NAME CITY, STATE ZIP	LIVING	CADAVERIC	TOTAL
29	40003F VA CENTER RIO PIEDRAS, PUERTO RICO 00936	8	3	11
	* NETWORK TOTALS *	8	3	11
30	490007 NORFOLK GENERAL HOSPITAL NORFOLK, VIRGINIA 23507	2	31	33
30	490009 UNIVERSITY OF VIRGINIA HOSPITAL CHARLOTTESVILLE, VIRGINIA 22903	6	22	28
30	490032 MEDICAL COLLEGE OF VIRGINIA RICHMOND, VIRGINIA 23298	4	38	42
30	49010F VETERANS ADMINISTRATION HOSPITAL RICHMOND, VIRGINIA 23249	1	13	14
30	510001 WEST VIRGINIA UNIVERSITY HOSPITAL MORGANTOWN, WEST VIRGINIA 26506	0	5	5
	* NETWORK TOTALS *	13	109	122

TABLE 13
1979 TRANSPLANTS BY TRANSPLANT CENTER
WITHIN ESRD NETWORK
(continued)

NETWORK	PROVIDER CITY, STATE	PROVIDER IDENTIFICATION NUMBER	ZIP	LIVING	CADAVERIC	TOTAL
31		210002 UNIVERSITY OF MARYLAND HOSPITAL BALTIMORE, MARYLAND 21201		2	18	20
31		210009 THE JOHNS HOPKINS HOSPITAL BALTIMORE, MARYLAND 21205		12	43	55
31		210029 BALTIMORE CITY HOSPITAL BALTIMORE, MARYLAND 21224		5	15	20
* NETWORK TOTALS *				19	76	95
32		310002 NEWARK BETH ISRAEL MEDICAL CENTER NEWARK, NEW JERSEY 07112		3	31	34
32		310029 OUR LADY OF LOURDES HOSPITAL CAMDEN, NEW JERSEY 08103		1	16	17
32		310076 SAINT BARNABAS MEDICAL CENTER LIVINGSTON, NEW JERSEY 07039		0	27	27
* NETWORK TOTALS *				4	74	78

Mortality and Morbidity

MORTALITY EXPERIENCE OF ESRD PROGRAM PARTICIPANTS 1973 - 1978*

Mortality statistics represent a critical component in evaluating the outcomes of the ESRD program. As shown in Table 14, people with end-stage renal disease experience much higher death rates compared to the general U.S. population.

As reflected in the ratio of the ESRD death rate to the U.S. rate for specific age-sex groups, the probability of death for the ESRD population is more than 50-100 times the probability for the U.S. population for the younger age groups. The difference in death rates decreases with increasing age, but is still on the order of 5-15 times greater for the over 65 population.

With the exception of those in the ESRD population under age 10, the death rates increase quite sharply with age. For example, ESRD program participants in the 15-19 year age group experience a death rate that is only about a tenth of the rate experienced by those in the 75-79 age group. As is true for the general population, males in the ESRD group experience higher death rates than females for almost every age group.

In addition to the crude death rate and age-specific death rates, survival rates are often useful in studying mortality in a population at high risk of death. For example, we can define the one-year survival rate as the proportion of persons who develop end-stage renal disease and who survive one year from the date the disease was first diagnosed. Table 15 shows the age-sex specific survival rates for five different cohorts of

the ESRD population and for the aggregate experience spanning five years.

Each cohort is composed of those individuals whose date of entry into the ESRD program is contained in the year-long period indicated. The survival rate for each cohort group is simply the proportion of people still living one year after their entry date.

It is important to note that because of constraints imposed by data availability, the date of entry is approximately three months after the actual date of first dialysis. That is, each cohort includes only individuals that have survived the first three months after their initial dialysis and the survival rate reflects the proportion of this group that is alive one year later, or 15 months after the date of initial dialysis. Since death rates for ESRD patients are particularly high in the initial months after the condition is diagnosed, the survival rates shown are probably higher than more conventionally defined one-year survival rates (i.e., defined as one year following diagnosis of the disease) would be. It was not possible to calculate one-year post-diagnosis survival rates due to unavailability of data, and the rates shown in Table 15 do allow some important observations on survival rates to be made.

As reflected in the death rates discussed earlier, the one-year survival rates also vary considerably with age and sex. The age-specific one year survival rates for all cohorts combined is greater than 0.9 for people under 24 years of age but decreases sharply with age and is only about 0.6 for those over age 75. The survival rate is generally higher for females than for males, and this difference increases with increasing age.

TABLE 14
DEATH RATES BY AGE AND SEX:
ESRD PROGRAM PARTICIPANTS 1976 - 1977
COMPARED TO UNITED STATES POPULATION, 1976

Age	Males		Females	
	U.S. 1976	ESRD + 1976-77	U.S. 1976	ESRD + 1976-77
5-9	0.41	105.5*	0.28	58.0*
10-14	0.44	38.2*	0.25	38.6*
15-19	1.40	46.4	0.53	53.9
20-24	1.98	61.7	0.64	59.4
25-29	1.87	77.3	0.72	93.8
30-34	1.96	110.4	0.94	99.3
35-39	2.62	110.7	1.39	100.4
40-44	4.06	129.6	2.25	102.3
45-49	6.48	157.3	3.56	111.4
50-54	10.2	164.0	5.37	139.4
55-59	15.8	208.4	8.07	169.7
60-64	25.0	229.5	12.3	197.6
65-69	35.9	331.3	17.1	278.8
70-74	54.3	381.5	28.6	312.3
75-79	82.6	494.2	48.5	447.9
80-84	115.2	569.7	76.3	502.5
85+	179.0	684.2	143.1	735.9
				ESRD U.S.
				207.1**
				154.4**
				101.3
				92.2
				129.6
				105.1
				72.4
				45.4
				31.3
				25.8
				21.9
				16.1
				16.3
				10.9
				9.2
				6.6
				5.1

+ The denominator used to calculate the ESRD rates is the number of "person-years" of participation in the ESRD program for the time period and sex-age group indicated.

*The coefficient of variation for this rate is greater than 0.2, and therefore the stability of this rate is questionable.

**This figure is based on a comparison of unstable rates.

TABLE 15
ONE YEAR SURVIVAL RATES¹ BY AGE AND SEX:
ESRD PROGRAM PARTICIPANTS, 1973-78

Age Groups	Cohort ²					All Cohorts Combined
	10/73- 9/74	10/74- 9/75	10/75- 9/76	10/76- 9/77	10/77- 9/78	
Males						
5-14 ³	.888	.890	.975	.918	.979	.930
15-24	.910	.930	.941	.916	.913	.922
25-34	.891	.844	.889	.857	.881	.880
35-44	.837	.851	.861	.848	.858	.851
45-54	.833	.823	.834	.835	.828	.831
55-64	.805	.766	.783	.774	.774	.780
65-74	.686	.736	.698	.683	.704	.700
75+	.579	.631	.546	.543	.594	.575
Females						
5-14 ³	.867	.932	.930	.960	.978	.933
15-24	.916	.938	.916	.913	.923	.921
25-34	.873	.883	.866	.871	.861	.871
35-44	.881	.851	.889	.868	.840	.866
45-54	.865	.834	.856	.857	.860	.855
55-64	.833	.813	.800	.795	.812	.809
65-74	.692	.689	.737	.740	.725	.723
75+	.696	.625	.589	.608	.659	.632

¹Due to constraints of data availability, each cohort contains only those ESRD program participants who survived the first three months following their date of initial dialysis or transplantation. The so-called one-year survival rate then reflects the proportion of each group that is still alive one year later, or 15 months after initial dialysis or transplantation.

²The date corresponding to three months after first dialysis or transplantation is used to assign program participants to the appropriate cohort, as shown.

³Data are not shown for those under age five, since the number of program participants in this age group is insufficient to allow the calculation of stable rates.

For example, considering all cohorts combined there is essentially no difference in one-year survival rates between males and females under 34, while the rates for people 75 and over are 0.575 for males versus 0.632 for females.

The one-year survival rates have remained rather stable since the initiation of the ESRD program in 1973-74. There has been no clear trend in either direction showing a change in one-year survival for program participants. There is some evidence that one-year survival rates may have improved for those in the 5-14 age group, but the evidence is inconclusive. There was no consistent change observed for any other age group.

It is important to note, of course, that survival trend data reflect only program participants. It does not measure the effect of the ESRD program as compared with what survival rates might have been before the program was initiated. Unfortunately, there are no data available that would permit comparison of survival rates before and after the ESRD program was initiated. The next annual evaluation of the ESRD program will provide an update of survival trend data and will include an analysis of two-year survival rates as well.

MORBIDITY

Determining Patient Morbidity Rates

No source available to us provides data on which to base patient morbidity rates. The Medical Information System was not established for that purpose. The question then is how best to obtain the data to meet the requirements in Section 1881(g)(9) of the Social Security Act to report on patient morbidity rates. To fulfill that requirement almost certainly will require direct contact with a sample of ESRD patients. We are studying the best means of approaching our data-gathering needs.

INPATIENT UTILIZATION

The existing data sources provide information on the need for hospitalization and the average length of stay for ESRD patients.

Table 16 shows the number of patients requiring hospitalization and the number of admissions required by those patients.

TABLE 16
PATIENTS BY NUMBER OF ADMISSIONS

1978			
Admissions	Patients	Distribution	
1	13,007	43.0%	
2	7,533	24.9%	
3	4,331	14.3%	
4	2,428	8.0%	
5+	2,956	9.8%	
Total Patients - 30,255			

1979			
Admissions	Patients	Distribution	
1	14,471	46.4%	
2	7,815	25.0%	
3	4,319	13.8%	
4	2,250	7.2%	
5+	2,360	7.6%	
Total Patients - 31,215			

The number of patients requiring hospitalization increased 3 percent from 1978 to 1979. The increase in patients hospitalized was distributed completely within the group of patients requiring three or fewer admissions. In 1978, 17.8 percent of the patients required four or more admissions, while in 1979 only 14.8 percent of the patients required four or more admissions.

In addition, a total of 2,771 fewer days of inpatient care was utilized, reflecting the decrease in the average length of stay per admission. Table 17 shows the total number of days of inpatient care utilized by ESRD patients and average length of stay during an admission.

Thus, the data show that during 1979 the rate of admission to a hospital declined relative to the increase in the ESRD population and that the average length of stay during an admission also declined. The data indicate improved health in the ESRD population. To the extent that it is possible to draw other conclusions, the data also indicate that onset of ESRD is being identified earlier and

that medical and technological advances have enhanced the ability of the medical community to maintain an ESRD patient in a stable state.

TABLE 17
INPATIENT DAYS OF CARE UTILIZED

	Patients Discharged		Patients Deceased	
	Total Days of Care	Average Length of Stay	Total Days of Care	Average Length of Stay
1979	62,705	10	2,963	18
1978	65,476	11	3,398	20

Costs

HOSPITALIZATION FOR ANCILLARY PROBLEMS IN DIALYSIS AND TRANSPLANT PATIENTS*

In the case of transplant patients, we have defined ancillary problems as those stemming from causes other than hospitalization for the actual transplant. For dialysis patients, we assume that their dialysis treatments are maintenance treatments, that is, they are required about three times a week and can be done on an outpatient basis. Therefore, we have assumed that any hospitalization of a dialysis patient will be for an ancillary problem.

FIGURE 11
AVERAGE ANNUAL CHARGES FOR HOSPITALIZATION OF DIALYSIS AND TRANSPLANT PATIENTS

Total annual per capita charges for all hospitalization	\$3,071
Total annual per capita charges for ancillary problems	\$2,340

To compute the expenditures for these ancillary problems, we reviewed a four-month sample of Medicare ESRD patients' inpatient bills. The total charges for any hospitalization cost where a transplant was performed were excluded as well as any charges for dialysis treatments

provided while the patient was hospitalized. The result represents reasonable data on charges for services provided to transplant and dialysis patients for treatment other than the transplant and dialysis.

Charges are a reflection of cost, but actual cost information for non-ESRD services furnished to ESRD patients is not directly obtainable from the present cost reporting system.

In order to approximate the cost of providing these services, a sample of all Medicare hospitals was used to obtain an average total annual cost to total annual charges ratio for hospitals. The average charges listed above were then multiplied by this ratio, which was 0.91 for 1979, arriving at the following costs:

FIGURE 12
ESTIMATED AVERAGE ANNUAL COSTS FOR HOSPITALIZATION OF DIALYSIS AND TRANSPLANT PATIENTS

Total annual per capita costs of all hospitalization	\$2,795
Total annual per capita costs of ancillary problems	\$2,129

We have initiated a special study aimed at identifying program costs and survival rates associated with alternative treatment therapies of end-stage renal disease. When completed, this will provide information on the specific costs of caring for transplant patients.

*Section 1881(g)(10): "the average annual cost of hospitalization for ancillary problems in dialysis and transplant patients, and drug costs for transplant patients"

DRUG COSTS FOR TRANSPLANT PATIENTS*

Drug costs for transplant patients cannot be determined using the current medical data and billing systems. This data cannot be compiled for several reasons. First, various billing forms are used, and it is not possible to determine the usage of drugs by patient category. Second, many of the drugs used by patients are not covered, and Medicare would not have a record of their cost. Third, most of the covered drugs furnished to transplant patients are furnished by hospitals, and, since the cost of services to transplant patients is only a small fraction of a hospital's total costs, hospitals are not required to identify these costs separately from the cost of similar services to all patients.

The Health Care Financing Administration is continuing to investigate the requirements of a system for collecting these data and the feasibility of such a system.

PAYMENT RATES*

Dialysis Payment Rates

The average payment rate for maintenance dialysis is \$149 per treatment based on the most current data reported by all renal dialysis facilities in the End-Stage Renal Disease program. This payment rate reflects the combined, weighted average of the payments to each of the two types of ESRD facilities: hospital based and non-hospital based (independent). Hospital-based facilities are paid the lesser of their cost or a

national payment limit, and their average payment is \$159 per treatment. Independent facilities are paid the lesser of their charges or a national payment limit, and their average payment is \$138 per treatment.

Changes in Dialysis Rates

Any ESRD facility desiring a payment rate above the national payment limit must request a reimbursement exception and submit documentation of its higher costs. During 1979, 301 ESRD facilities requested reimbursement exceptions to the screen. Of these 301 requests, 278 were approved (in full or in part) and 23 were denied in full or returned to the facility for additional, substantiating information. Approval of a rate change depends on the characteristics of the individual facility. Some of the more prevalent reasons for approval include the following:

1. Treatment of a more seriously ill population
2. Treatment of an unusual patient population (e.g., children)
3. Location in a high cost or low utilization area
4. Low utilization due to sporadic workload (a hospital treating cases only as referred)

The ranges of payment rates requested and approved in excess of program payment screens for 1979 are as follows:

*Section 1881(g)(10): "the average annual cost of hospitalization for ancillary problems in dialysis and transplant patients, and drug costs for transplant patients"

*Section 1881(g)(11): "Medicare payment rates for dialysis, transplant procedures and physician services along with any changes in such rates during the year and reasons for those changes"

TABLE 18
RANGES OF REQUESTS FOR
REIMBURSEMENT EXCEPTIONS
 January 1 - December 31, 1979

Range of Request	Outpatients	Home Training	Peritoneal
Up to \$150	19	0	0
\$151 - 170	66	7	0
\$171 - 190	52	17	1
\$191 - 210	32	8	0
\$211 and over	66	24	9
Totals	235	56	10
Grand Total	301		

TABLE 19
RANGES OF APPROVAL
(FULL OR PARTIAL APPROVALS)
 January 1 - December 31, 1979

Range of Approval	Outpatient	Home Training	Peritoneal
Up to \$150	27	0	0
\$151-170	80	8	0
\$171-190	62	15	1
\$191-210	17	9	0
\$211 and over	35	20	4
Totals	221	52	5
Grand Total	278		

Transplant Procedures

In the recent study of transplant bills, we found that the average charge for the transplant procedures, including the charge for the donated kidney, hospitalization, and other ancillary services of the recipient, is about \$19,300. While charges are a reflection of payment rates, actual Medicare payments for hospitalization are based on the cost of furnishing services. However, actual cost information for non-ESRD services furnished to ESRD patients is not obtainable from the present cost reporting system. Charge data

are received as an individual bill and are recorded in the ESRD data system when the bill is submitted. Cost data are not available until the close of a fiscal year and are not analyzed separately for ESRD patients. In order to approximate the cost of providing these services, a sample of all Medicare hospitals was used to obtain an average total annual cost to total annual charges ratio for hospitals. The average charge of \$19,300 was then multiplied by this ratio which was 0.91 for 1979, giving a cost of \$17,563 for 1979. The ratio for 1978 was 0.89, and the average 1978 charge for these services was \$19,000, yielding the average cost of transplant procedures of \$16,910. The increase in these costs for 1979 over 1978 was 3.9 percent.

The ESRD program has not developed average transplant payment rates throughout the year; however, it is assumed that any changes in the rates would be a direct result of the inflationary movement of health care costs in general. This seems to be a valid assumption since the largest cost of a transplant procedure is the hospitalization (room and board, operating room, etc.)

Physician Services

The payment rates for physician services can be categorized by the type of treatment the patient receives, either dialysis or transplant.

Dialysis

Dialysis physicians are reimbursed under one of two methods--the initial method, and the alternative method. Under the initial method, physicians receive payment for their supervisory dialysis services directly from the facility. Other services required by the patient (not considered routine) are billed by the physician on a fee-for-service basis. Under the initial

method, the average payment rate to physicians for supervisory services during dialysis is part of the overall dialysis charge. Since the provider facilities are paid on a cost basis, the physician component of the total cost is identifiable. The average payment rate for physician services included in the provider facilities' overall dialysis charge is \$13 per treatment. However, by definition, the portion of the charge allowed for physician supervisory services during dialysis is \$12 per treatment.

Under the alternative reimbursement method, physicians are paid a monthly fee for each patient for full renal care of that patient. This includes supervisory services during dialysis plus all other renal related services, complicated or routine, furnished during a particular month. Prior to July 1, 1978, the alternative monthly allowances for physician services to patients dialyzing in a facility ranged from a minimum level of \$160 to a maximum level of \$240. The allowances for physician services for treatment of patients dialyzing in the home ranged from a minimum level of \$112 to a maximum level of \$168. The smaller payment rate for home dialysis is due to the fewer services rendered to home dialysis patients. Physician payments are subject to the Part B coinsurance and, thus, reimbursement was made at 80 percent. The alternative physician reimbursement rates remained constant from the time of their implementation in 1974 until July 1, 1978.

Effective July 1, 1978, the alternative method monthly allowances were increased to reflect changes in customary and prevailing charges. The revised monthly payment now ranges between \$180 and \$260 before coinsurance for physician services to facility patients and between \$126 and \$182 for physician services to home dialysis patients. In no event was the increase in alternative monthly allowance allowed to exceed 20.9 percent,

the rise in the Medicare economic index from July 1, 1975, to July 1, 1978. The mean payment before coinsurance under these revised rates was \$220 per month for physician services to facility patients and \$154 a month for physician services to home patients.

Transplant

Transplant physicians perform two types of services--the excision of donor kidney and the implantation of the kidney. The excising surgeon's payment rate is \$350 for one kidney excised and \$700 for two.

For the transplant of the kidney, the average payment depends on the extent of other services provided by the physician, i.e., if a splenectomy procedure is included when the transplant is performed, or whether immunosuppressive care is provided after the transplant. The range of payment rates for the transplant and other services is \$1,690 to \$2,730. These rates include an increase of about 7.5 percent in 1979 to reflect an increase in the economic index.

COST SAVINGS EXPERIMENTS*

Experiments with Dialysis Aides and Durable Medical Equipment

The Health Care Financing Administration is sponsoring three demonstration projects designed to increase the efficiency of the ESRD program without reducing the quality of care received by ESRD patients. These demonstrations were initiated under authority contained in Section 402 of the 1967 Amendments to the Social Security Act, as amended by Section 222(b) of P.L. 92-603, and closely follow Section 1881(f)(2) of P.L. 95-292.

*Section 1881(g)(12): "the results of cost savings experiments"

The demonstrations involve changes in the present ESRD benefits. The major change involves coverage of the services of a dialysis aide for maintenance dialysis sessions performed in the patients' homes. All paid dialysis aides are receiving training from an approved training program in a participating dialysis facility. When the aide has satisfactorily completed the training course, the training facility certifies the aide to assist the patient with whom the aide was trained. The aide is then directly employed by the training facility, by the patient, or by an independent agency, depending on the model followed at the individual demonstration sites. In all cases, the patient and aide receive ongoing direction and supervision from the participating dialysis facility.

If a patient chooses not to use the services of a paid home aide but prefers to use the assistance of a family or household member to assist in dialysis, then the patient receives a monthly payment equal to approximately one-half the amount that would have been reimbursed for the paid aide's services. This payment is intended to encourage the continued use of family members to assist with dialysis and to provide an additional incentive for patients to use home dialysis.

A second benefit change, involving only one demonstration site, originally permitted implementation of a less costly method of reimbursing for dialysis equipment used in the patient's home. Under this demonstration, participating facilities purchase dialysis equipment directly from suppliers and are reimbursed by Medicare on a lump-sum basis at 100 percent of cost. This equipment is then provided to the facility's home patients. Medicare continues to reimburse the facility for costs associated with maintenance, repair, and refurbishment of the equipment. P.L. 95-292 allows the same reimbursement arrangement for dialysis equipment on a national basis, for facilities that enter into a special arrangement. Regulations were published effective October 1, 1978, to im-

plement the provision. Therefore, since October 1, 1978, the demonstration has been limited to gathering data on the cost effectiveness of this new provision of the law.

Three contracts were awarded to design and implement these demonstration projects. One was awarded to System Sciences, Inc., located in Bethesda, Maryland, which has enlisted the participation of eight dialysis facilities in six different states: New York, Massachusetts, Mississippi, Florida, Minnesota, and California. Approximately 800 patients were initially eligible to participate in the demonstration. The second contract was awarded to Research Triangle Institute and involves approximately 600 ESRD beneficiaries and 10 dialysis facilities in North Carolina. A third was awarded to the University of Utah for implementation of demonstrations in Colorado and Utah. Approximately 400 ESRD beneficiaries resided in these states at the beginning of the project. All three projects provide for coverage of paid home dialysis aide services and the one-half rate payment to home patients who use the assistance of a family or household member to dialyze. Only the University of Utah project involves the experimental reimbursement methodology for dialysis equipment. The System Sciences demonstration became operational on April 1, 1978, the University of Utah demonstration on July 1, 1978, and the Research Triangle Institute demonstration on October 1, 1978.

Each demonstration project will be operational for approximately three years. During this period, an independent evaluation of the demonstrations will be conducted under a separate contract. Participating beneficiaries will continue to receive coverage for aide services for an additional six years after the operational period has ended in order to provide a meaningful incentive for ESRD beneficiaries to go on home dialysis during the experiment.

The evaluation of the three demonstrations will focus on the areas of cost, utilization of

services, and quality of care. A Request for Proposal (RFP) was issued to obtain an evaluation contractor, and an award was made to Orkand Corp. in September 1979. An interim evaluation report will be available in November 1980.

A first year annual report has been received from System Sciences, Inc., which indicates an increase in the number of home patients in experimental facilities from 195 to 310, or 59 percent. The number of facility patients increased approximately 17 percent. The control group facilities experienced increases in both the home and in-center populations of 7 percent. A total of 85 dialysis assistants and 220 family partners were participating in the study at the end of the first year. A few of the dialysis assistants act as aides to more than one patient. Many of the family partners and a few of the dialysis assistants were already dialyzing patients before the demonstration began. Cost data are not yet available, and consequently it is not known at this time whether any program savings have been achieved.

A draft annual report has also been received from the University of Utah which indicates an increase in the home patient population of Utah and Colorado of 40 percent, while the in-center population increased by 11 percent. Most of the increases occurred in small Colorado units which previously had no active home programs. Data on control group patients are not yet completed.

The Research Triangle Institute annual report indicates a small increase in the North Carolina home patient population in the first year. The comparison state, Tennessee, demonstrated a larger increase in its home population, but began with a low home dialysis patient level.

Study of the "Implementation of the End-Stage Renal Disease Program"

In September 1978, a grant was awarded to Rand Corporation to undertake a study of the

"Implementation of the End-Stage Renal Disease Program" and to identify the major factors affecting its implementation. Based on this analysis, recommendations for improving the ESRD program are being developed.

The second purpose is to determine the applicability of the administrative implications of the ESRD implementation for possible national health insurance programs. Though the ESRD program has been cited as an administrative prototype for national health insurance, no explicit, analytic effort has been made to extract the lessons from this limited experience for potential use in a larger context. The research is seeking to make these lessons explicit.

The scope of this research project includes analysis of: (1) the design of the interim program, which began with the enactment of P.L. 92-603 and concluded with the publication of the interim ESRD regulations on June 29, 1973; (2) the execution of the interim program, which began on July 1, 1973, the effective date of the interim regulations, and which ended with the publication of final regulations on reimbursement in December 1977; and (3) the design of the long-term program, which began with the enactment of P.L. 92-603 and ended with the publication of the final regulations on reimbursement. Analysis of the execution of the long-term program, however, including program revisions following passage of Public Law 95-292, is beyond the scope of the research project.

The final report on the study is nearly complete and will be published later this year.

ESRD PHYSICIAN COMPENSATION STUDIES

Northwestern University has performed some initial work for HCFA on the issue of what is an appropriate method of physician reimbursement. Its paper challenged the "fairness" notion as a

basis of appropriateness and suggested that a better standard would be a compensation scheme that provided for lowest total program costs consistent with a given level of quality. In the paper, Northwestern pointed out that focusing on "fairness" and ignoring the larger issue of the financial incentives to physicians in regard to total program costs (not just physician costs) could be counterproductive to the efforts for general cost containment.

In fiscal year 1980 this study will continue and the scope of the Northwestern project will be broadened to include other aspects of the ESRD program. It will address, on a conceptual basis, the following issues:

What are the ESRD policy options and what is implied by these options for program change?

What are the incentives facing ESRD facilities?

What are efficient methods to produce dialysis treatments?

What empirical measures can be developed to test the models of behavior developed above?

What are the best methods to measure the costs to HCFA of the ESRD program under various modes?

Plans for FY 1980

The analysis proposed for the coming year will be primarily empirical and will consequently depend on the availability of data. Several

data sources are being investigated which are expected to become available during the year. In particular, HCFA is attempting to procure a combined analysis file consisting of program data merged with survey responses collected by the Research Triangle Institute during the Home Dialysis Aide Study.

The goals of the empirical analysis in the forthcoming year will be to test the theoretical implications of the modeling efforts now underway. Of particular interest is the impact of financial incentives facing physicians, patients, and dialysis facilities on total program costs. Given that little empirical analysis has been performed in this research area, it seems likely that the results will give the program guidance. Depending on data availability, the following issues will be investigated and empirically developed:

Do total program costs differ for patients being treated by physicians reimbursed by the fee-for-service versus capitation?

Does preselection of patients and/or physicians affect our ability to generalize the cost differences that occur between the two methods of physician compensation?

How should the capitation rate be set so as to minimize total program costs?

Are there differences in the productivity of dialysis services between the for-profit and the not-for-profit dialysis facilities? Between the physicians of the dialysis facilities on capitation vs. the physicians on fee-for-service compensation plans?

Research

RESULTS OF RESEARCH*

Typical of basic research being conducted under the aegis of the Federal Government, private institutions, and foreign governments is a group of selected studies listed below. Fundamental studies in kidney disease range from investigations of metabolism in sub-cellular fractions to clinical studies of patients which elucidate patterns of genetic and metabolic aberrations.

Polycystic kidney disease is responsible for 9-10 percent of end-stage renal disease. The adult form is inherited, but its exact cause is unknown. Rat and rabbit models have been developed that mimic the human form of the disease, both morphologically and functionally. Micropolyps are found frequently in the lumina of medullary collecting tubules of a rat using the nor-dihydroguaiaretic acid model. This observation led to the hypothesis by one group that partial occlusion induced by epithelial cell proliferation may be responsible for increased intraluminal pressure; that in turn causes dilatation of tubular segments. However, other currently available evidence seems to indicate that changes in the tubular basement membrane may be the cause of tubular dilatation and eventual cyst formation. To test this hypothesis, a group at the Kansas University Medical Center is using a rabbit model induced by the oral feeding of diphenylamine.

Recently the prostaglandin thromboxane A₂, a powerful vasoconstrictor, has been identified in ischemic kidneys. Preliminary findings indicate that this substance plays an important role in the regulation of blood flow and vascular

resistance in the kidney. The perfusion characteristics of a normal kidney may be altered by the addition of a second ischemic kidney when they are both perfused in common. Not only do these findings contribute to our knowledge of vascular physiology, but they could also result in an increase in the number of usable cadaveric kidneys.

In studies at the University of Utah, an investigator has identified a non-plasma, abnormal 180,000 dalton protein in the urine of most proteinuric patients with hereditary nephritis and Alport's syndrome. A similar protein was found in only one of 27 proteinuric patients with other forms of renal disease. Future investigations will include the isolation, purification, and preliminary analysis of the protein from one individual, followed by production of antibodies and subsequent isolation using affinity chromatography. In addition, characteristics of proteins obtained from urines of different families with hereditary nephritis will be compared using standard physico-chemical techniques, as well as by immunologic characterization using affinity chromatography. The results of this study have the potential to provide the basis for biochemical diagnosis of hereditary nephritis in the absence of renal biopsy and family histories and possibly provide insight on basic knowledge from which specific treatment for the disease may be developed.

Progress in the understanding of metabolism in renal failure is being made in several areas. Studies of the role of the liver in the carbohydrate abnormalities of uremia are directed toward derangements in glucose intolerance

*Section 1881(g)(13): "the results of basic kidney disease research conducted by the Federal Government, private institutions, and foreign government;"

and to secondary problems related to peripheral glucose utilization. Glucose turnover, recycling of glucose, and turnover of glyconeogenic precursors in uremic subjects, before and after dialysis, are being measured.

The characteristic alterations in the hepatic synthesis of albumin produced by uremia are being studied in vitro and in vivo with emphasis on impaired albumin synthesis in the uremic rat since blood albumin levels are reduced in patients with ESRD prior to initiation of dialysis.

Plasma triglycerides are elevated in about a third of dialysis patients and the three major lipoprotein classes (VLDL, LDL, HDL) have an increased percentage of triglycerides. Orosomucoid deficiency in plasma, secondary to urinary loss, may be responsible for the hyperlipotemia of nephrosis, since orosomucoid functions as a co-factor in the (LPL) enzyme system. Both lipoprotein lipase (LPL), the tissue enzyme system which mediates triglyceride removal in CRF patients, and orosomucoid (alpha 1-acid glycoprotein, om) as a co-factor in the action of lipoprotein lipase (LPL) may have related actions both in vivo and in vitro.

A multi-faceted study of uremia and renal adaptation includes the following: (1) isolation, characterization, and development of assays for natriuretic hormone; (2) clinical and experimental studies of sodium excretion, the role of salt load, natriuretic factor, and volume distribution in uremia; (3) the pathogenesis of secondary hyperparathyroidism in uremia; and (4) experiments using isolated, perfused uremic tubules, including examination of the functional profile of the uremic nephron, and isolation of the intrinsic adaptive changes of tubule in uremia.

Varying degrees of immunodeficiency develop both in experimental animals and in man. Such immunosuppression appears during chronic uremia more in cell-mediated immunity than in humoral immunity. Uremic serum from partially nephrec-

tomized rats, and serum of dialysis patients is used for biochemical characterization of inhibition of the mixed lymphocyte reaction (MLR) in rats following induction of chronic uremia after subtotal nephrectomy. Serum factors responsible for immunodeficiency in uremia are being identified.

Studies of renal failure in hepatic cirrhosis have elucidated the interactions of the renin-angiotensin system and renal prostaglandins and their efforts upon both systemic and renal hemodynamics.

Studies of endocrine abnormalities in uremia in animal models include the role of the kidney in the metabolism of glucagon, the gonadotrophins and prolactin; effects of the uremic state upon metabolism of polypeptide hormones; role of the normal and diseased kidney in removing hormones from the circulation; and determination of the relative roles of tubular reabsorption and peritubular uptake in hormone degradation in the kidney. The relation of impairment of vitamin D metabolism in the uremic state to a circulating toxin or agent responsible for decreased synthesis of 1,25 dihydroxy vitamin D₃ (1,25 DHCC) is being examined. Preliminary data showed 24-hydroxylase activity in several of the established cell lines, but no 1-hydroxylase activity was detected or induced.

Reduced binding to albumin of a wide variety of aromatic organic compounds occurs in plasma of uremic patients. The inhibitor of this binding has been identified as a small, stable, water soluble lipophobic molecule with a strong fluorescence in water. Further investigations to isolate and identify this inhibitor substance are in process. Normal plasma contains one-fifth the inhibitor effect as that found in uremia plasma.

Although normal red blood cells have complex systems to protect them against oxygen radicals, red blood cells from patients with chronic renal failure can undergo damage when exposed to oxidants, such as peroxide and superoxide. Ac-

cumulation of oxidized forms of hemoglobin-methemoglobin and sulfhemoglobin of a magnitude similar to that found in patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency occurs. The detection, analysis, and counteraction of oxidant elements in the hemodialysis system have been done. Chloramines cause methemoglobin for-

mation during dialysis. "Dialysis water purified" by reverse osmosis contains almost the same concentration of chlorine compounds as does tap water. Ion exchange and charcoal filtration effectively remove both chlorine and chloramine. Oxidant compounds other than free chlorine and monochloramine were not found in dialysis water.

Network Activities*

INTRODUCTION

The end-stage renal disease networks were established by regulations published on June 3, 1976 (CFR 405.2110). The role and function of networks were further expanded and clarified by P.L. 95-292 and by a regulatory notice of proposed rulemaking published July 18, 1979. In general, the new regulations give ESRD patients and the general public a more active role in the network decisionmaking process; encourage greater use of the lower cost forms of treatment; self-dialysis and kidney transplantation; and encourage greater objectivity in network decisionmaking. The three major functions of networks were defined as planning, providing data on facility certification and approvals, and performing medical review activities.

With respect to network medical review activities, the responsibility and authority of the Medical Review Boards were refined and expanded to state explicitly that each network Medical Review Board (MRB) is authorized to review medical patient information in performing any of its medical review functions. MRB members are also precluded from using or releasing individual patient information for purposes other than performing Medical Review Board functions. Many networks completed their organization to carry out their functions and responsibilities in 1978. In 1979 all networks were fully operational for the first time in their major areas of responsibility: medical review, planning, and verification of the need for additional treatment capability.

MEDICAL REVIEW ACTIVITIES

Each year networks are required to report to the Health Care Financing Administration their accomplishments during the preceding year. The review of reports submitted in 1979 indicates that 18 of the 32 networks completed appropriate medical care evaluation studies (MCEs): 12 networks have initiated medical care evaluation studies which, although not completed by the mid-1979 report date, hold promise for the future. Many networks initiated more than one study and only two networks did not initiate a study. The MCE process as implemented involved collecting data from each facility and then returning to the facility a comparison of the network average and its own performance. Where the need for corrective action was indicated, the facility was responsible for developing its own course of action to respond to that need. Re-audits are instituted, after allowing time for improvements to occur. In general, these MCEs seem to be increasing the awareness of the renal medical community to the necessities of carefully evaluating the modality of treatment, the course of treatment, and the cost effectiveness of the treatment.

The largest number of studies addressed the issue of initiating patient care appropriately. The purpose of this area of study is to ensure that patients are properly identified and placed in treatment according to agreed upon medical standards. The networks report that better patient referrals and patient recordkeeping systems have resulted. Another major area of study was the issue of the appropriate method of treatment,

*Section 1881(g)(14): "information on the activities of medical review boards and other network organizations"

especially the proper referral of patients to home dialysis and transplantation. The networks report that communication has been enhanced between the dialysis and transplant communities and has resulted in an increased use of home dialysis and transplantation.

Several networks studied the methods to control hepatitis. The results led to changes in hepatitis reporting methods aimed at rapidly identifying a hepatitis outbreak to avoid further contamination. In addition, networks conducted studies on specific circumstances and interests. For example, networks are studying mortality and survival rates of ESRD patients, frequency and duration of hospital confinements, and unique problems of children on dialysis.

Efforts have begun to provide technical assistance to medical review boards which should increase their effectiveness. Workshops and training in performing medical care evaluation studies and performing profile analyses are planned for 1980. In addition, refinements in the data collection system will provide treatment information which may be of assistance in monitoring changes in the quality of care being furnished in the network.

RELATIONSHIPS WITH OTHER AGENCIES

Networks are required to establish working agreements with health systems agencies, state health planning and development agencies, state health coordinating councils, Professional Standards Review Organizations, and contiguous networks. Thirty networks have established working agreements, including formal memoranda of under-

standing with these agencies. The other two networks were in the process of developing formal relationships with these organizations. Networks and other organizations cooperate on a variety of activities, but several examples characterize the results of these efforts. One state adopted the network's recommendation as its five-year ESRD plan. Network staff and state planners meet frequently to update this integrated effort. Several networks performed analyses of patient utilization of the various forms of treatment that assist these agencies that assess need for additional dialysis treatment capacity.

NETWORK GOALS FOR 1980

Twenty-four of the 32 networks established goals that were found acceptable in terms of including quantified goals on (1) patients to undergo self-dialysis training; (2) patients who will enter a home dialysis or in-facility self-dialysis program; and (3) patients who will receive a kidney transplant. Additionally, networks established many other goals relating to such activities as increasing accessibility of care, increasing network scrutiny of quality of care matters and patient rehabilitation, establishing criteria for facility staffing, and improving data collection and utilization.

Eight of the networks either refused or evaded the HCFA operating guideline to include in their annual report quantifiable goal statements, and therefore did not submit any meaningful goals. These networks are: 3, 6, 15, 23, 24, 27, 28, and 32. HCFA is in contact with these networks to assist them in meeting their responsibility to establish goals concerning use of the most appropriate modality of care for their patients at the least cost to the government.

PLANNING FOR CERTIFICATION OF NEW FACILITIES AND EXPANSION OF EXISTING FACILITIES

One of the networks' primary responsibilities is to minimize duplication of ESRD facilities and services and to foster productivity and efficiency in the ESRD health care delivery system. This task entails review of present facilities and services in the network area and recommendations on the development, expansion, and support of these facilities. To fulfill this responsibility, each network is required to develop fair and objective procedures for reviewing facility applications. Thirty-one of the 32 networks demonstrated their capability in this area during 1979.

Although the network role in the facility certification process is limited to making certification recommendations to the HCFA Regional Offices, there is evidence that the networks are taking their role seriously. The networks are assuming more than a minimal review and comment role; they are recommending against applications which, according to network criteria, are not required to meet the needs of patients in the network area. In 1979, 171 applications for new facilities or expansions of existing facilities were received, 157 of which were reviewed by the networks. Of the 1,233 stations requested, the networks recommended only 1,003 for approval.

The HCFA Regional Offices finally approved 1,061 stations for certification.

Comparable data for 1978 showed that of 211 applications received, 182 were reviewed by the networks. Of the 1,609 stations requested, 1,249 stations were recommended for approval by the networks, and 1,240 were approved by the Regional Offices.

Needs Perceived by the Networks

The networks have evaluated their projected facility dialysis and transplantation needs scientifically and in conjunction with their proposed home dialysis and transplantation goals. Network needs were stated by health systems agency area and were based on existing renal disease treatment resources and on the present end-stage renal disease incidence per million. This incidence rate per million population (usually 60 to 80) was used in conjunction with existing resources, the anticipated population growth or decline, and the expected utilization of home dialysis and transplantation to arrive at network renal disease treatment needs in 1980, 1981, 1982, etc. This approach should ensure an orderly, well-planned, cost-effective methodology to meet the treatment needs of the nation's expanding ESRD population.

Five-Year Projections*

COST ESTIMATES

Medicare enrollment for persons with ESRD is projected to increase from 68.2 thousand in Fiscal Year 1981 to about 83.7 thousand by Fiscal Year 1985. Annual Medicare benefit payments for enrollees are projected to increase from \$1.5 billion to about \$2.6 billion over the same period of time. The year-to-year changes are the result of the interaction of two factors: (1) increases in the population, including changes in the mix of treatment modes, and (2) increases in the cost of the services provided. The table below shows the projected enrollment and benefit payments on a cash basis through fiscal year 1985.

TABLE 20
ESTIMATED ENROLLMENT AND
AGGREGATE BENEFIT PAYMENTS ON A CASH
BASIS TOTAL ESRD MEDICARE PROGRAM

Fiscal Year	Average Annual Enrollment (thousands)	Total Benefit Payments	
		(millions)	
1981	68.2	\$1,517	
1982	72.8	1,782	
1983	76.8	2,065	
1984	80.5	2,364	
1985	83.7	2,681	

*Section 1881(g)(15) "estimated program costs over the next five years"

Appendices

APPENDIX A - DATA SOURCES

Data Sources

Table 1a,1b	ESRD Medical Information System 1978, 1979 Facility Surveys	Table 14	ESRD Medical Information System in Cooperation with the National Cancer Institute, National Institutes of Health
Table 3	ESRD Medical Information System 1979 Facility Survey	Table 15	National Cancer Institute, National Institutes of Health
Table 4	ESRD Medical Information System 1977, 1978, 1979 Facility Surveys	Table 16	ESRD Medical Information System
Table 5	ESRD Medical Information System 1978, 1979 Facility Surveys	Table 17	ESRD Medical Information System
Table 6	ESRD Medical Information System 1979 Facility Survey	Table 18	ESRD Reimbursement and Utilization System
Table 7	ESRD Medical Information System 1979 Facility Survey	Table 19	ESRD Reimbursement and Utilization System
Table 8	ESRD Medical Information System 1979 Facility Survey	Table 20	Prepared for Inclusion in the 1981 Budget
Table 9	ESRD Reimbursement and Utilization System	Information on basic kidney disease research was provided by the National Institute of Arthritis, Metabolism and Digestive Diseases, National Institutes of Health.	
Table 10	ESRD Reimbursement and Utilization System		
Table 11	ESRD Medical Information System 1979 Facility Survey	<u>Tables</u>	
Table 13	ESRD Medical Information System 1979 Facility Survey	Table 1a	Change in the percentage distribution of the dialysis population
		Table 1b	Number and percentage increase of Medicare patients

Table 2	Minimum utilization rate status	Table 15	One-year survival rates by age and sex: ESRD program participants, 1973-1978
Table 3	Dialysis treatment setting of ESRD patients by ESRD network	Table 16	Patients by number of admissions
Table 4	Annual distribution of home patients by ESRD network	Table 17	Inpatient days of care utilized
Table 5	Descending array of 1979 percent of Medicare dialysis population in the home by ESRD network	Table 18	Range of requests for reimbursement exceptions
Table 6	Annual distribution of kidney transplants by source of donor organ	Table 19	Ranges of approval
Table 7	ESRD network distribution of kidney transplants by source of donor kidney	Table 20	Estimated enrollment and aggregate total ESRD Medicare program
<u>Figures</u>			
Table 8	ESRD network comparison of 1979 patients awaiting transplants to 1979 and 1978 transplants	Figure 1	ESRD network map
Table 9	Average and range of kidney acquisition charges by region and calendar year	Figure 2	Overview of transplant and dialysis patients--1978-1979
Table 10	Average and range of kidney acquisition costs by region and calendar year	Figure 3	Distribution of total ESRD population by network
Table 11	ESRD network distribution of transplants arrayed by number of transplants performed	Figure 4	Suppliers of ESRD services--dialysis facilities by network
Table 12	Range and number of transplants performed - 1979	Figure 5	New patient characteristics
Table 13	1979 transplants by transplant center within ESRD network	Figure 6	Dialysis (top half of Figure 2)
Table 14	Death rates by age and sex	Figure 7	Transplant (bottom half of Figure 2)
		Figure 8	Range of kidney acquisition charges 1977-1979
		Figure 9	Estimate of kidney acquisition cost 1977-1979
		Figure 10	Suppliers of ESRD services--transplant centers by network

- Figure 11 Average annual charges for hospitalization of dialysis and transplant patients
- Figure 12 Estimated average annual costs for hospitalization of dialysis and
- Figure 13 Number of profit providers of ESRD services by network
- Figure 14 Number of non-profit providers of ESRD services by network

APPENDIX B - CLASSIFICATION OF ESRD FACILITIES AS DEFINED BY SUBPART U 42, CFR 405.2100 ESRD UTILIZATION

An ESRD facility (Renal Dialysis Center - RDC, Renal Dialysis Facility-RDF) which meets all other conditions for coverage of ESRD services is classified according to its utilization as follows: unconditional status, conditional status, or exception status.

If the facility meets the utilization requirements for unconditional status, this status remains as long as the facility continues to meet the requirements. If the facility meets the utilization requirements for conditional status, this status also remains as long as the facility continues to meet the requirements, except that a facility will not be granted conditional status for more than two consecutive calendar years.

Effective with the implementation of the long-term ESRD regulations (September 1, 1977), conditionally approved facilities have two consecutive years in which to achieve unconditional utilization classification.

Failure to achieve unconditional utilization status during the prescribed period will result in the immediate institution of decertification proceedings. January 1981 is the earliest date such proceedings can be begun.

Under unusual circumstances, the Secretary may grant an exception for a limited time, not exceeding one year, to a facility which is not in compliance with the minimum utilization rate(s) for either unconditional status or conditional status. This exception may be granted where rigid application of minimum utilization rate requirements would adversely affect the achievement of ESRD program objectives.

Facilities which do not meet at least one of the above classifications will not be eligible for reimbursement for that ESRD service. The utilization standards for renal dialysis facilities (RDFs) are:

- (1) For any facility located within a standard metropolitan statistical area of 500,000 population or greater:
 - (a) Unconditional status - six or more dialysis stations with performance of an average of 4.5 or more dialyses per station per week.
 - (b) Conditional status - six or more dialysis stations with performance of an average of between 4.0 and 4.5 dialyses per station per week, or four or five dialysis stations with performance of an average of 4.5 or more dialyses per station per week.
- (2) For any facility located in a standard metropolitan statistical area of less than 500,000 population, or in an area not included in a standard metropolitan statistical area:
 - (a) Unconditional status - three or more dialysis stations with performance of an average 4.0 or more dialyses per station per week.

- (b) Conditional status - two dialysis stations with performance of an average of 4.0 or more dialyses per station week.

Renal Dialysis Centers - RDCs

The utilization standard for Renal Dialysis Centers performing greater than 20 percent of their dialyses on outpatients:

- (1) For any facility located within a standard metropolitan statistical area of 500,000 population or greater:

(a) Unconditional status - six or more dialysis stations with performance of an average of 4.5 or more dialyses per station per week.

(b) Conditional status - six or more dialysis stations with performance of an average of between 4.0 and 4.5 dialyses per station per week, or four or five dialysis stations with performance of an average of 4.5 or more dialyses per station per week.

- (2) For any facility located in a standard metropolitan statistical area of less than 500,000 population, or in an area not included in a standard metropolitan statistical area:

(a) Unconditional status - three or more dialysis stations with performance of an average of 4.0 or more dialyses per station per week.

(b) Conditional status - two dialysis stations with performance of an average of 4.0 or more dialyses per station per week.

The utilization standard for Renal Dialysis Centers performing 20 percent or less of their dialyses on outpatients:

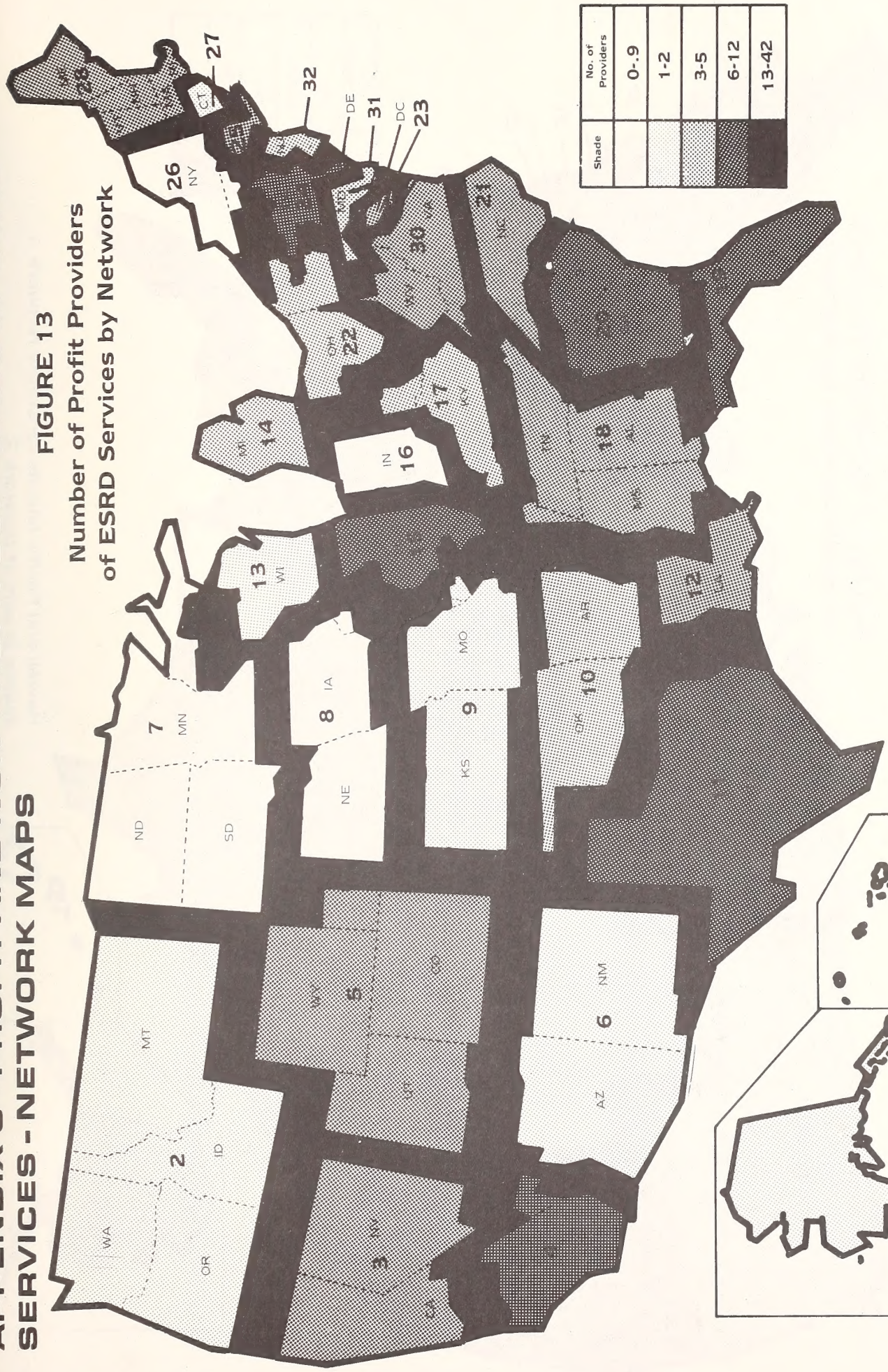
(1) Unconditional - three or more dialysis stations with performance of an average of 4.0 or more dialyses per station per week.

(2) Conditional - two dialysis stations with performance of an average of 4.0 or more dialyses per station per week.

APPENDIX C - PROFIT AND NON-PROFIT SUPPLIERS OF ESRD SERVICES - NETWORK MAPS

FIGURE 13

Number of Profit Providers
of ESRD Services by Network



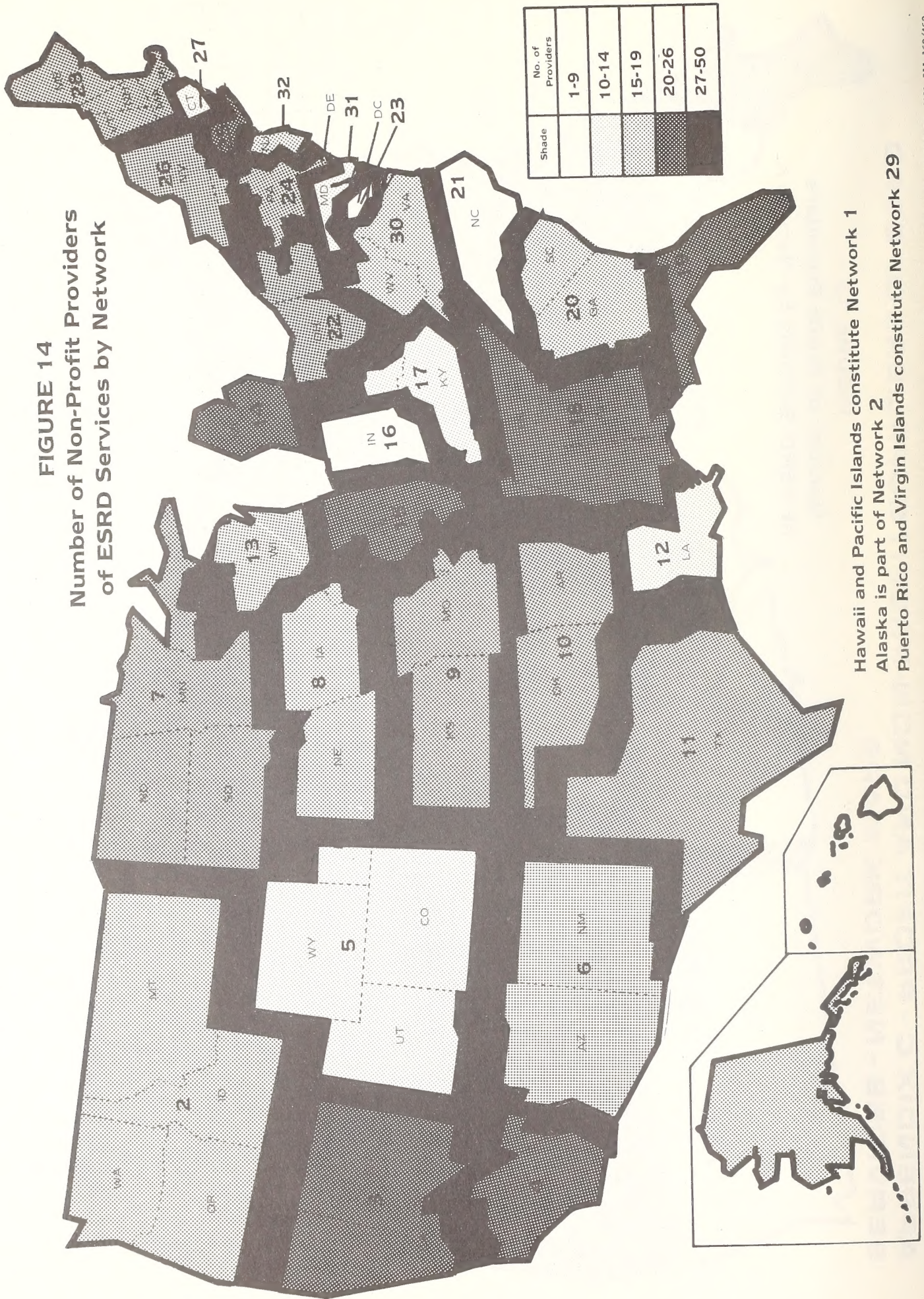
Shade	No. of Providers
	0-9
	1-2
	3-5
	6-12
	13-42

Hawaii and Pacific Islands constitute Network 1

Alaska is part of Network 2

Puerto Rico and Virgin Islands constitute Network 29

FIGURE 14
Number of Non-Profit Providers
of ESRD Services by Network



DEPARTMENT
HEALTH AND HUMAN SERVICES
HEALTH CARE FINANCING ADMINISTRATION
BALTIMORE, MARYLAND 21235

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

3 8095 00013745 1



POSTAGE AND FEES PAID
U.S. DEPARTMENT OF H.H.S.
HHS 392

